December • 1954

VOL. 11 • NO. 12

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finish

MONTHLY TRADE PUBLICATION
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A trade publication devoted to the interests of the metal products manufacturing industry with special editorial attention to home appliances. Includes technical and practical information on plant facilities and manufacturing problems from raw metal to safe delivery of the finished product, with special emphasis on fabrication, metal preparation, metal finishing, assembly, and packaging and shipping.

Free controlled circulation to management, purchasing, engineering and key plant personnel in metal product manufacturing plants. To others, subscription price is $5.00 per year, domestic. To all other countries $8.00 per year (U.S. funds).

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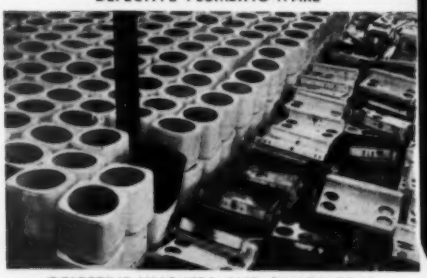
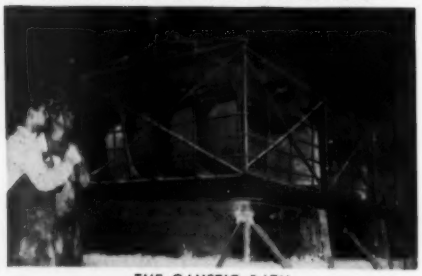
METAL PRODUCTS MANUFACTURING
FROM RAW METAL TO FINISHED PRODUCT

DEFECTIVE PLUMBING-WARE



DEFECTIVE WASHERS AND RANGE TOPS

D-ENAMELING SAVES UP TO 50% OF ORIGINAL PART COST



THE CAUSTIC BATH

THE WASH-OFF

SANDBLASTING

Over the past three years, D-Enameling has more than proved its dollars and cents value to manufacturers of ranges, bathtubs, sinks, refrigerator liners and washing machine tubs. Before D-Enameling, these manufacturers had to scrap defective parts. All the material and labor that went into them was a complete loss. Now, for a small cost, these same manufacturers are able to transform defective parts into first line salable, profit-building products. To cost-conscious management it is obviously smart business to spend a few dollars to save many more. One stove manufacturer, for example, through D-Enameling has been able to save as much as 50% of the original cost of range tops. If you're interested in cutting costs, it will pay you to find out about D-Enameling now. You'll be agreeably surprised how much the simple economics of D-Enameling can benefit you.

May we discuss this soon?

THESE INDUSTRY LEADERS KNOW FROM EXPERIENCE THAT D-ENAMELING TRANSFORMS SCRAP LOSS INTO PROFIT DOLLARS

ARROW SIGN CO. • BRIGGS MANUFACTURING COMPANY • CAPITAL AIRLINES • CHALLENGE STAMPING & PORCELAIN CO. • CLEVELAND-TENNESSEE ENAMEL COMPANY • CLYDE PORCELAIN STEEL DIV. • CONLON-MOORE CORPORATION • CRIBBEN AND SEXTON COMPANY • CROWN STOVE WORKS • DWYER PRODUCTS CORPORATION • ESTATE HEATROLA DIVISION • FLORENCE STOVE COMPANY, Kankakee • GENERAL PORCELAIN ENAMELING AND MANUFACTURING COMPANY • GIBSON REFRIGERATOR COMPANY • GLOBE AMERICAN CORPORATION • GRAY & DUDLEY CO. • ICE COOLING APPLIANCE CORPORATION • A. J. LINDEMANN & HOVERSON COMPANY • MAGIC CHEF INC. • MALLEABLE IRON RANGE COMPANY • MAYTAG CO. • NORGE DIVISION, Effingham • NORGE DIVISION, Muskegon Heights • PRENTISS WABERS PRODUCTS CO. • GEO. D. ROPER CORPORATION • RHEEM MANUFACTURING CO. • SAMUEL STAMPING & ENAMELING CO. • A. O. SMITH CO. • THE ENAMEL PRODUCTS COMPANY • THOR CORPORATION • TYLER FIXTURE CORPORATION, Waxahachie.

New Process *D-Enameling* Corp.

Highland and New Haven Avenues • Aurora, Illinois

DOW CORNING CORPORATION

Silicone News

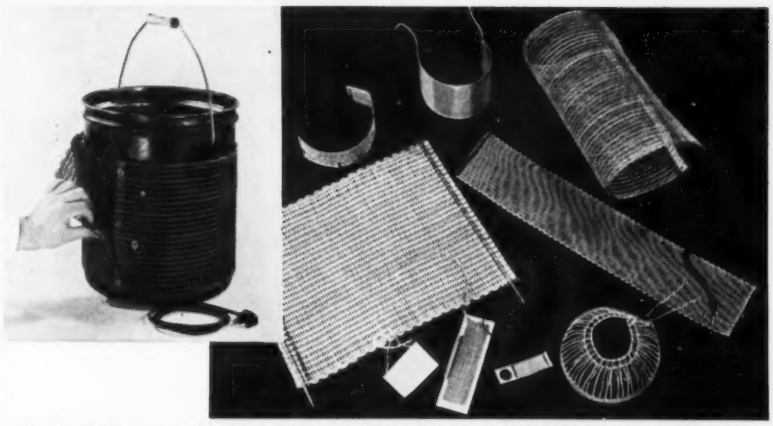
FOR DESIGN ENGINEERS

Silicone-Based Paint Withstands Up To 1000 F On Oven Interiors

Especially adapted to preheating and stress relief of small parts, the new Grieve-Hendry cabinet drawer electric oven has a capacity of 850 F. It is so well designed that any one of the 24 drawers may be opened without lowering the temperature of the remaining drawers.

The service life of the oven is increased by finishing the interior of each drawer with a silicone-based aluminum paint formulated by Midland Industrial Finishes of Waukegan, Illinois. Grieve-Hendry has been applying this silicone finish to the interiors of all their oil, gas and electric ovens for over 3 years. Easily applied by spraying to form a smooth and uniform coating, the silicone paint protects the metal surfaces against corrosion at surface temperatures up to 1000 F. *No. 15*

New Pressure Sensitive Adhesives that stick to almost any material remain serviceable and can be applied at temperatures from —67 to 480 F. Uses include bonding silicone treated electrical insulating materials, sealing and wrapping tapes and assembly of small electronic parts prior to mechanical installation. *No. 18*



SILICONE INSULATED WOVEN HEATERS PROVIDE MORE EFFICIENT METHOD OF CONTACT HEATING

Woven contact heaters, once reserved exclusively for the military, are now being offered for a variety of industrial applications. One of these is a 5 gallon drum heater developed by the Pre-Fab Heater Company, Inc., of Guildford, Conn. Designed to melt drums of plastisol, this lightweight heater brings the contents of the drum to temperatures in the range of 110 to 500 F with maximum speed and uniformity. Safe and convenient, the heater snaps in place around the drum and plugs into any 115 volt outlet.

Contact heaters of this type were orginally developed to keep high altitude aerial cameras and control mechanisms operable at sub-zero temperatures. Lighter, less bulky and more flexible than conventional heating pads, the heaters are custom woven to fit the part. Some of the dozens of configurations and patterns developed for military use are shown above. These heaters, operating in the far infra-red range at high efficiencies, carry current-densities of 15 watts per square foot to 15 watts per square inch.

The wires in the heaters designed to meet military specifications, are served with glass yarn impregnated with Dow Corning silicone electrical insulating varnishes to assure long and reliable performance at temperatures in the range of 500 F. The silicone-glass combination eliminates electrical breakdowns caused by sudden and extreme changes in ambient temperatures. It withstands heavy thermal shock without loss of electrical properties.

Another feature of importance to designers is that only slight consideration must be given the heater when designing parts or products requiring this protection. The thin structures are easily tailored to meet specific needs. *No. 16*

Pressure Cooker Gaskets of Silastic Last Longer, Reduce Clean-up Time

The new pressure cooker made by the Hamilton Copper & Brass Works of Cincinnati, features a steam jacket that heats the entire inner bowl. Designed for internal kettle pressures up to 15 psi and steam pressures up to 90 psi, the cookers are sealed with a Silastic* gasket fabricated by Garlock Packing Company.

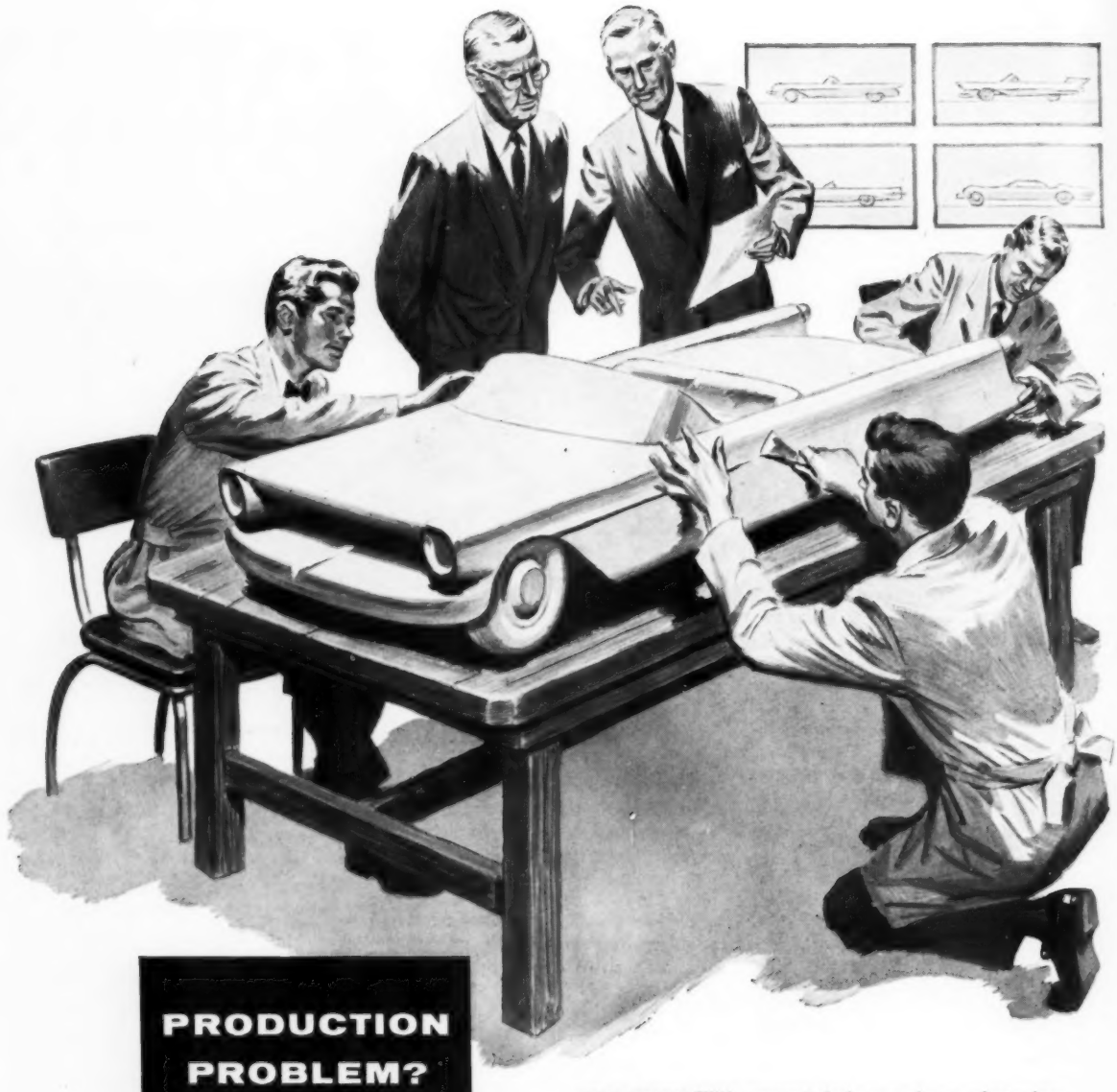
Tests indicate that the Silastic gaskets will have at least twice the service life of the organic rubber seals previously used. Furthermore, even foods as hard to clean off as tomato paste or candy do not stick to the gasket. Cleaning time is reduced and the carry-over taste associated with organic rubber gaskets eliminated. *No. 17*

Design Edition 4

DOW CORNING CORPORATION - Dept. ES-24
Midland, Michigan
Please send me more data on numbers:
15 16 17 18

NAME _____
TITLE _____
COMPANY _____
STREET _____
CITY _____ ZONE ___ STATE _____

ATLANTA • CHICAGO • CLEVELAND • DALLAS • DETROIT • LOS ANGLES • NEW YORK • WASHINGTON, D. C. (Silver Spring, Md.)
Canada: Dow Corning Silicones Ltd., Toronto; **England:** Midland Silicones Ltd., London; **France:** St. Gobain, Paris



PRODUCTION PROBLEM?

if you use flat-rolled steel talk to a specialist

PROBLEM With present designs and manufacturing facilities, the auto industry needs wide coils of sheet steel with a minimum number of welds. These welds must be cut out before steel goes into the big presses—a costly, time-consuming process.

SOLUTION As a prime supplier to the automotive and other industries, Great Lakes Steel has developed facilities which now produce wide coils of steel in greater lengths . . . drastically reducing the number of expensive welds in each coil. Result: important fabrication savings for our customers.

MORAL Whether you make autos, appliances, or farm machinery . . . if it's flat-rolled steel, you can't lose by talking to Great Lakes Steel—specialists in flat-rolled production and application for 25 years.

Great Lakes Steel
Detroit 29, Michigan

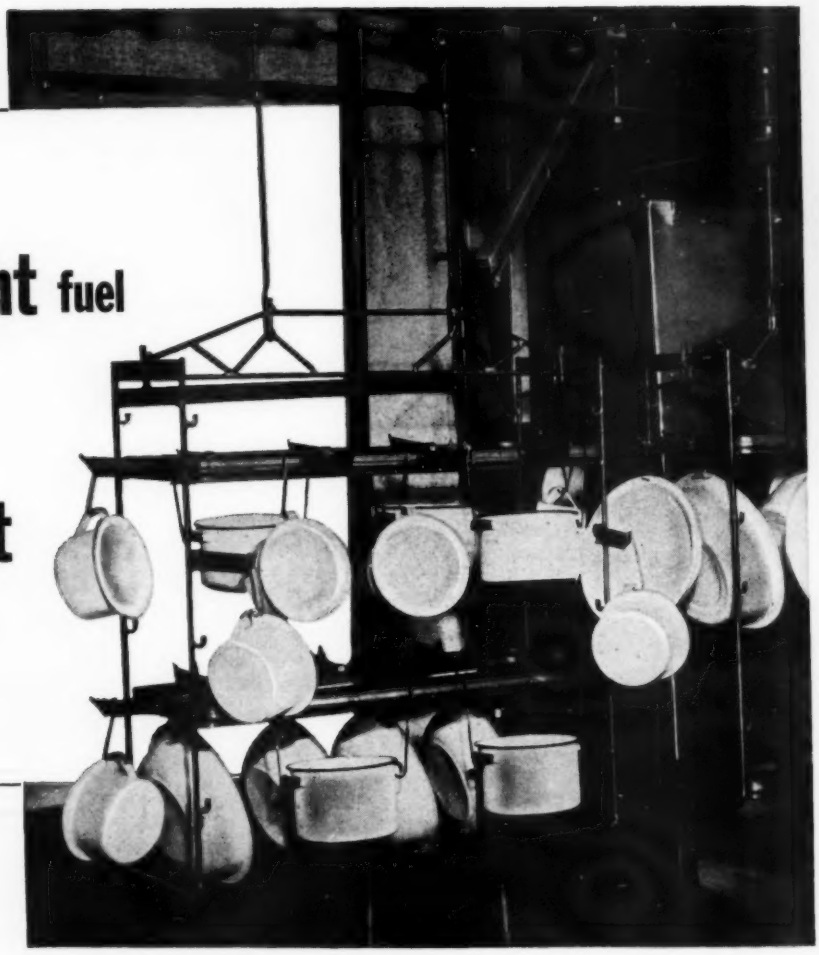
UNIT OF NATIONAL STEEL CORPORATION

SALES OFFICES IN NEW YORK, CHICAGO, CLEVELAND, GRAND RAPIDS, LANSING, INDIANAPOLIS AND PHILADELPHIA

THE finish spotlight

Two appliances in one — a home freezer and a refrigerator — has been introduced by Deepfreeze for 1955. The freezer contains 4.2 cubic feet. The refrigerator section, at top, is so engineered that its 7.3 cubic feet holds about the same amount of food as a conventional 11-cubic-foot refrigerator. An "electronic sentinel" maintains the proper temperatures in the two separated zones. Roll-out shelves, sliding shelf, sliding basket and various door storage sections are provided.

Make heavy-weight fuel savings with light-weight Inconel burning tools



The more metal you bring up to enameling temperatures, the more fuel it takes.

That's why a good many plants now use Inconel® to reduce burning tool deadweight.

One large mid-western enameler, for example, saves approximately 37% on his fuel costs in this way. Originally he used 67 lb. fixtures to fire 63 lb. loads. With Inconel, 33 lb. fixtures do the trick.

Another concern, using double-deck hangers, has reduced weight of each from 31½ to 24 pounds (about 25%) . . . cut heating time and fuel costs accordingly.

Both manufacturers also point to product improvement and reduction in spoilage caused by falling scale. They also mention reduction in wear of conveyor parts.

Inconel makes light-weight burning tools possible because it retains high strength at enameling temperatures in sulfur-free atmospheres. It resists oxidation and scaling and requires little or no maintenance.

You'll find, too, that Inconel is easy to fabricate and weld. You're free to design for minimum section and maximum capacity.

If you would like to know more about making heavy-weight fuel savings with light-weight Inconel, write today for "Redesigning Burning Tools Cuts Costs."

The International Nickel Company, Inc.
67 Wall Street New York 5, N. Y.

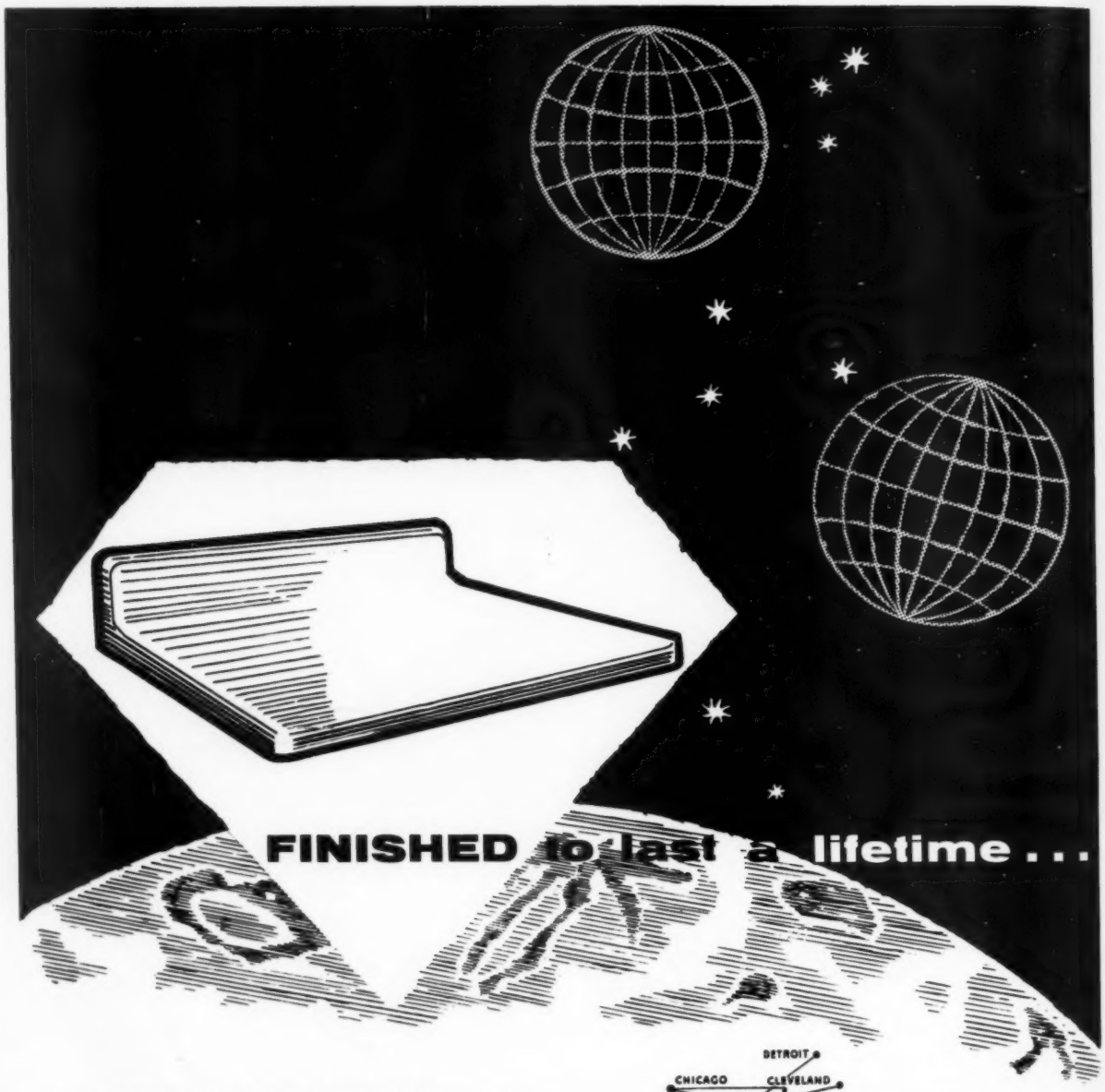
Inconel

INCO TRADE MARK NICKEL ALLOYS

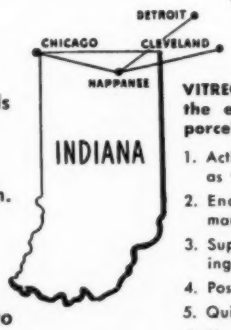
. . . for long life at high temperatures

INGRAM-RICHARDSON, INC.
OFFICES, LABORATORY AND PLANT
FRANKFORT, INDIANA

ING-RICH
FRIT
"The Plant Tested Frit"



The reason why porcelain enamel is being used more and more by manufacturers in many different fields is because it *is* the lifetime finish. For instance, a clothes dryer with a porcelain enameled top won't lose its attractive appearance. It won't scratch. It won't rust and stain clothes that are folded on it. Refrigerator pans last indefinitely. Outdoor tables need no refinishing. Before long your desire to give your customers the most for their money will lead you to redesign, changing paint to porcelain enamel. Vitreous Steel Products Co. has the experience and the knowledge and the manufacturing capacity to meet your demands.



VITREO facilities help you meet the ever-growing demand for porcelain enameled parts by:

1. Acting as a source for stamping as well as enameling.
2. Enameling stampings of your manufacture.
3. Supplementing your own enameling plant.
4. Possibly saving die costs.
5. Quickly solving your color problems.
6. Keeping transportation costs low. (By operating our own trucks, we can often pick up and deliver at the same time, thereby saving most of the cost of one-way transportation.)

VITREOUS STEEL PRODUCTS CO.
BOX 1791 • CLEVELAND 5, OHIO • (Factory at Nappanee, Ind.)

Plan... for the Lifetime Finish

A fine, smooth
porcelain enamel finish
never dulls, nor loses its
gleaming china-like surface.
It deserves a good enameling
base* and a sheet surface texture
prepared to assure maximum
adhesion of the coating.

PORCELAIN ENAMEL ON *USS Vitrenamel** BASE

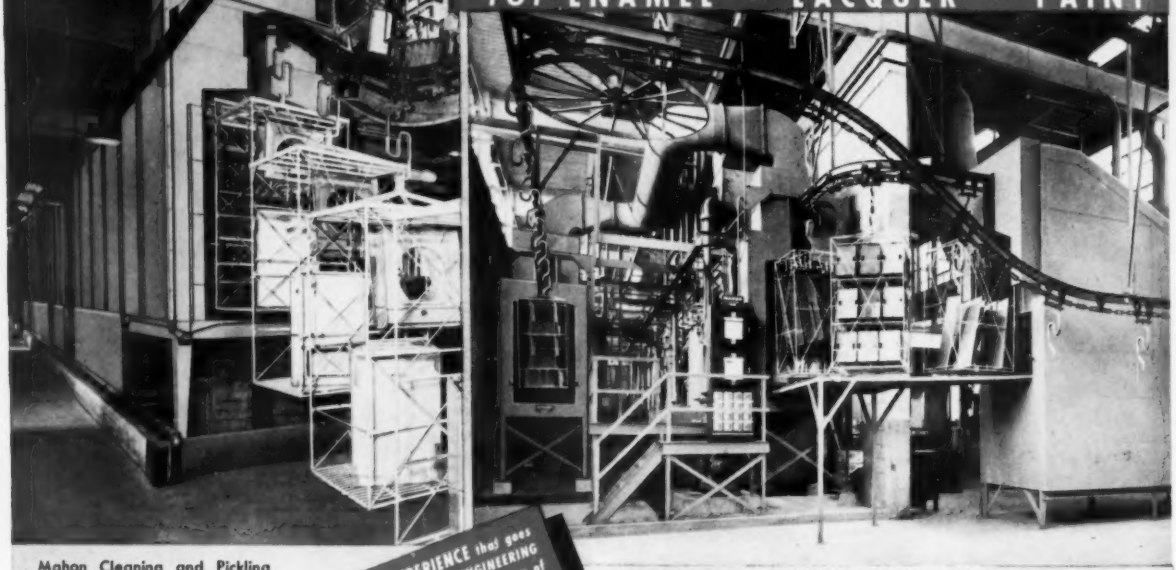
USS

UNITED STATES STEEL CORPORATION, PITTSBURGH • COLUMBIA GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

UNITED STATES STEEL

COMPLETE *Finishing* SYSTEMS

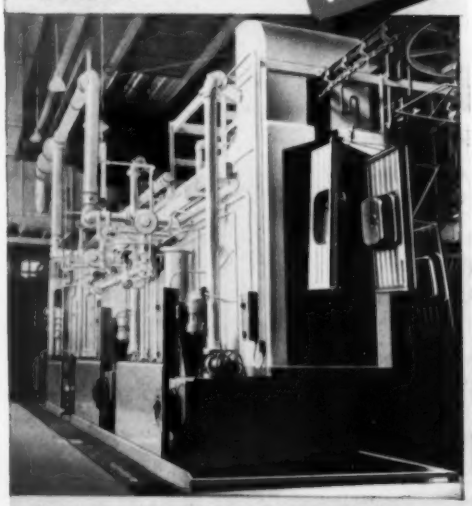
for ENAMEL • LACQUER • PAINT



Mahon Cleaning and Pickling Machine Installed as Part of a Complete Finishing System for one of the World's Largest Household Appliance Manufacturers.

. . . the EXPERIENCE that goes into the PLANNING and ENGINEERING of MAHON EQUIPMENT is the item of GREATEST VALUE to YOU!

Mahon Cleaning and Pickling Machine with Dry-Off Oven Installed in the Plant of a Leading Electric Range Manufacturer.



Mahon Cleaning and Pickling Machine Installed in the Plant of a Manufacturer of Porcelain Enameled Kitchen Sinks and other Units of Plumbing Ware.

Now, PICKLING OPERATIONS can be included in your CONVEYORIZED FINISHING SYSTEM!

Pickling operations no longer require a separate room with elaborate ventilating, fume control, and air replacement equipment. Cleaning and Pickling, preparatory to porcelain enameling, can now be done on the same overhead monorail conveyor that carries parts through other processing units of your conveyorized production finishing system. Pickling can be done in one third the time with more uniform results in a modern Mahon conveyorized spray-impingement Pickling Machine. All this is made possible by a Patented Hydro-Hermetic Seal on the Mahon Pickling Machine which effectively seals the top of the processing tunnel and provides positive protection for the conveyor track, trolleys and chain . . . no corrosive fumes can escape to damage conveyor parts. Sixteen of these Mahon Pickling Machines are now in operation in plants where descaling, pickling and rust proofing are necessary phases in the finishing process. Mahon Cleaning and Pickling Machines can be fitted right into your present finishing production system . . . they can be designed to meet any existing layout, processing requirement or production rate. Have a Mahon engineer call and give you complete information . . . and, let him tell you where and how a Mahon Conveyorized Spray Pickling Machine will cut costs in your present setup. See Sweet's Plant Engineering File for other Mahon Industrial Equipment, or write for Catalog A-655.

THE R. C. MAHON COMPANY

HOME OFFICE and PLANT, Detroit 34, Mich. • WESTERN SALES DIVISION, Chicago 4, Ill.

Engineers and Manufacturers of Metal Cleaning and Pickling Equipment, Metal Cleaning and Rust Proofing Equipment. Spray Booths, Flow and Dip Coaters, Drying and Baking Ovens, Complete Conveyorized Finishing Systems, and Other Units of Special Equipment.

MAHON

emulsified asphalt

Gentlemen:

In your journal, October issue of *finish*, there is an article on "Freezer Assembly Operations at Amana." On page 34, a young fellow is shown squirting black goop onto the interior seams of a cabinet shell; caption says "with emulsified asphalt." Is this really emulsified asphalt?

R. E. Ahlf
Engineering Department
Seeger Refrigerator Co.
Evansville, Indiana

According to the supplier of the material, this sealer is a special odor-free, oxidized asphalt emulsified with various plasticizers and oils to obtain the required physical properties.—Eds.

the Karl Turk fellowship

Gentlemen:

Here is Harvard University's brochure describing The Karl Turk Fellowship—its origin, purposes and qualification requirements.

We have all been concerned about the source of future executives for the ceramic industry. As you know, technical knowledge is not enough. But when both are combined in one person, that young man has much to contribute.

It was our intention, when we established The Karl Turk Fellowship, to encourage such dual preparation for the good of the entire industry. Naturally, we have no control over the selection of the applicants for the fellowship.

W. Russell Greer
Vice President
Pemco Corporation
Baltimore, Maryland

loss and damage prevention forms

Gentlemen:

Please accept my appreciation for the publicity given my remarks before the National Freight Claim Council, American Trucking Association, in the October issue of *finish*.

We have received numerous requests for copies of the loss and damage prevention forms referred to in this article, and hope it will prove beneficial to other shippers.

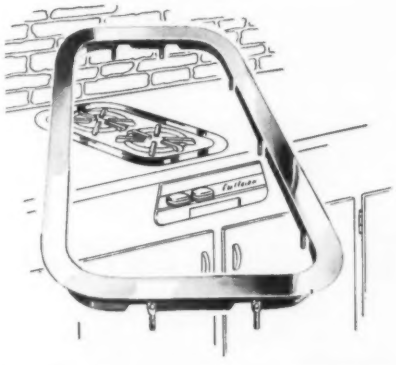
S. H. Colyer
Ass't. Traffic Manager
Carrier Corporation
Syracuse, New York

For the Built-In Oven and the Drop-In Cook Top...

PYRAMID

FRAMES AND RIMS

Frames and rims are two items in the Pyramid line that will help you *step up sales* with *smarter appearance*. From lamp shades to kick plates, Pyramid specializes in sparkling stainless steel trim for modern appliances.



The latest trend in cooking appliances is the built-in oven and the drop-in cook top. If *you're* going after this market, you'll *want* to know about PYRAMID *Stainless Steel* FRAMES and RIMS ...Completely fabricated, *ready to attach to your unit*, they combine function with sparkling appearance designed to step up sales. Write for your copy of the Pyramid "Plan Book of Metal Mouldings"...*today!*

Pyramid Mouldings Inc.
5365 WEST ARMSTRONG AVE., CHICAGO 30, ILL.
NEW YORK CALIFORNIA

SEND FOR YOUR FREE COPY OF "PLAN BOOK OF METAL MOULDINGS"

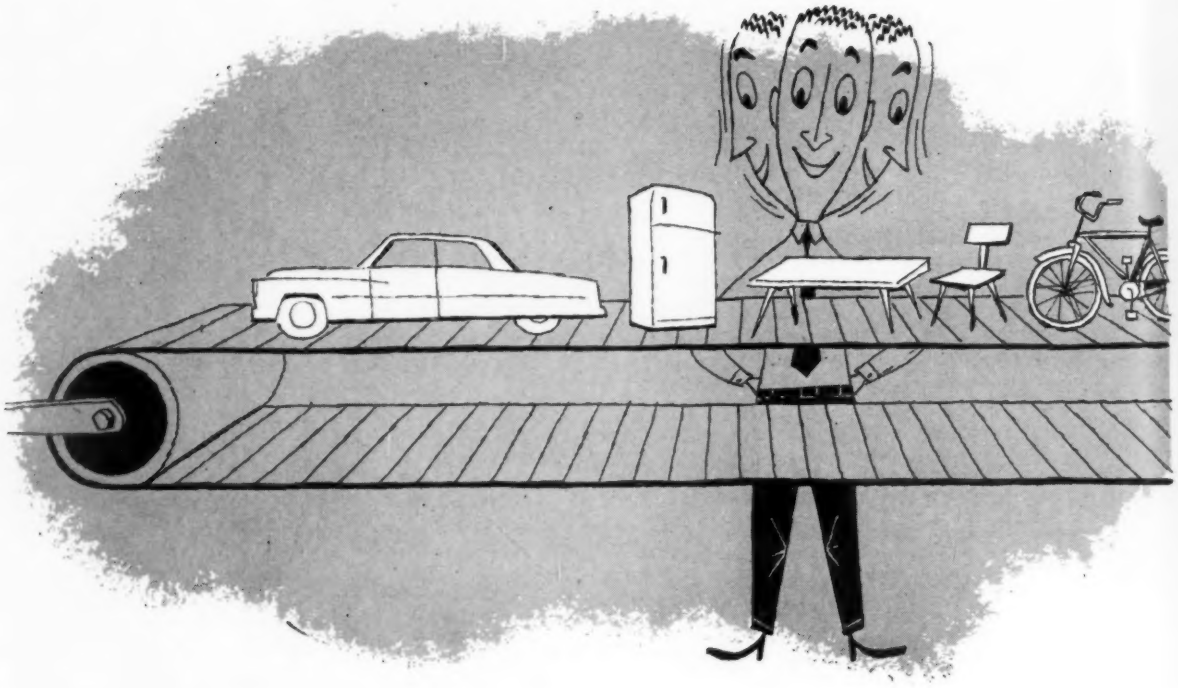
No one connected with the design or manufacture of any appliance should be without a copy of this book containing hundreds of standard and special mouldings. Send for your free copy today.

Without obligation, please send copy of "Plan Book of Metal Mouldings." F-12

Name_____ Title_____

Firm_____

Address_____



TITANOX® IS PRODUCTION-LINE WHITE MAGIC

for organic and inorganic finishes

Be sure you use TITANOX in your production-line finishes, because only TITANOX assures you of getting the most out of magical titanium dioxide.

For organic finishes, three rutile pigments stand out: TITANOX-RA, TITANOX-RA-50 and TITANOX-RA-NC. With these easy mixing, easy dispersing pigments you can obtain the exact qualities of brightness, whiteness, opacity, fade- and chalk-resistance you desire.

For porcelain enamels, TITANOX-TG and TITANOX-TG-400 stand out as products made specifically for the frit maker. Easy to use, these unique products assure uniformity of all titania porcelain enamel properties.

You can get more out of titanium dioxide, too, by consulting our Technical Service Department. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; Atlanta 2; Boston 6; Chicago 3; Cleveland 15; Los Angeles 22; Philadelphia 3; Pittsburgh 12; Portland 9, Ore.; San Francisco 7. In Canada: Canadian Titanium Pigments Limited, Montreal 2; Toronto 1.

®TITANOX

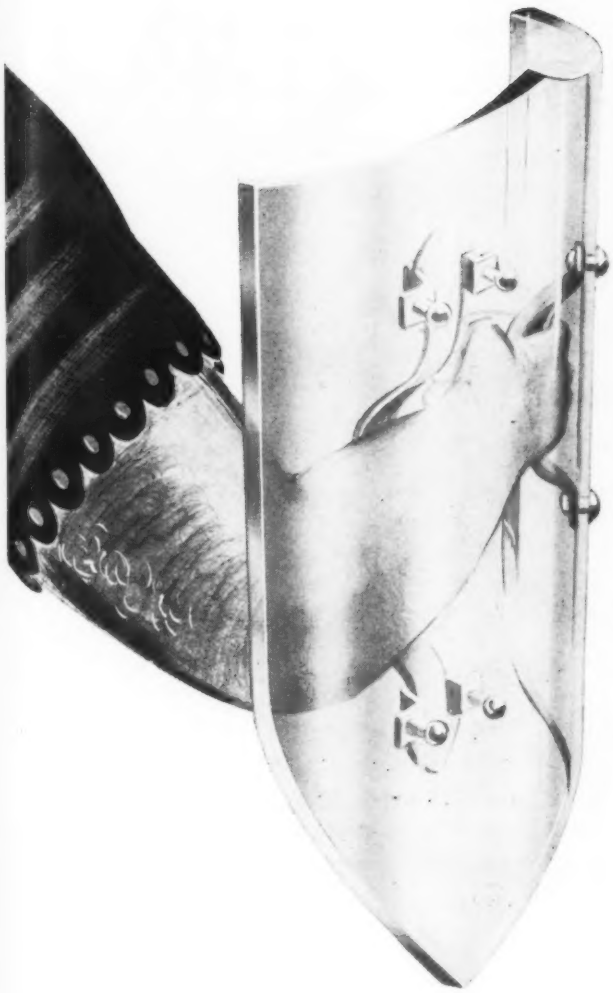
brightest name in the finish

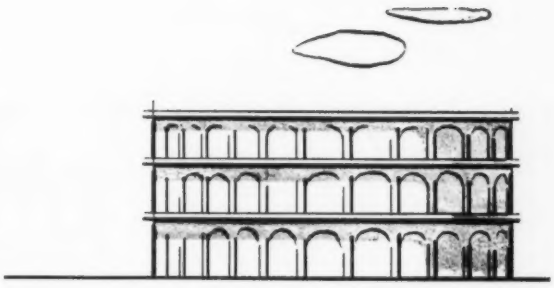
TITANOX

TITANIUM PIGMENT CORPORATION

Subsidiary of NATIONAL LEAD COMPANY

2301-A





this shield,
while symbolic,

represents some of the things a master craftsman can do with glass. It can be bowed to fit any desired shape, it can be drilled and shaped to exact tolerances.

It can be tempered to impart extreme resistance to impact — that is why safety regulations demand glass as a safety barrier when danger exists.

Let Marsco's craftsmen-engineering team impart to your product all the advantages of glass

Let glass improve the utility of your product while it beautifies it.

Marsco

MARSCO MFG. CO., 2909 S. HALSTED ST., CHICAGO 8, ILL.

Dual Cincinnati FINISHING SYSTEMS

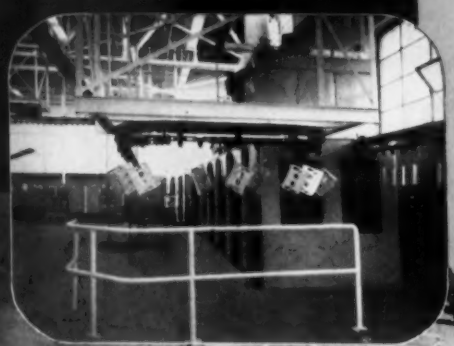
AUTOMATIC PAINT DIP and CHROMODIZER OPERATIONS:

1. Alkaline Clean
2. 1st Rinse
3. Passivate
4. 2nd Rinse
5. Hot Air Blow-Off

   All parts receive this treatment, some then go to assembly.
6. Paint Dip
7. Oven Bake

   Other parts are painted on conveyor.
8. Stripper
9. Rinse

   For empty conveyor hangers.



save 60% in time

...for noted aircraft manufacturer

A double conveyor line cleaning and paint finishing system in a well known mid-western aircraft plant handles all sorts of formed aluminum parts up to 15" x 20" in size. Moving at 18 feet per minute, the conveyors carry the parts through the various operations, removing grease, oil and chips prior to painting and assembly.

Among interesting design features: The arrangement of the system around the outer perimeter of the room, leaves the center clear for storage and loading and unloading operations. The zinc chromate dip tank has a refrigeration system to maintain tank temperature at 74° F., reducing evaporation of volatiles. The system is protected with CO_2 equipment and automatic paint tank dump.

As was done in this installation, Cincinnati Engineers will gladly design equipment to suit your needs. Whatever your cleaning or finishing problems, a survey costs you nothing, may point the way to substantial savings. Write today for booklet: "Finishing Systems."

Cincinnati

CLEANING & FINISHING MACHINERY CO., INC.
2004 HAGEMAN STREET, SHARONVILLE, OHIO

MEETINGS

APPLIANCE MFRS. CONFERENCE

Institute of Appliance Manufacturers, general meeting and management conference, Netherland Plaza, Cincinnati, December 6-8.

KITCHEN CABINET MEETING

Steel Kitchen Cabinet Manufacturers Association, quarterly meeting, Chicago, December 8.

HOME FURNISHINGS MARKET

International Home Furnishings and Winter Home Furnishings Markets, The Merchandise Mart, and the American Furniture Mart, Chicago, January 3-14.

HOME LAUNDRY MFRS. MEETING

American Home Laundry Manufacturers Association, annual meeting, Morrison Hotel, Chicago, January 7.

HOUSEWARES MFRS. EXHIBIT

National Housewares Manufacturers Association, annual national housewares and appliance exhibit, Navy Pier, Chicago, January 13-20.

PLASTICS TECHNICAL MEETING

Society of Plastics Engineers, annual national technical conference, Chalfonte-Haddon Hall, Atlantic City, January 19-21.

PLANT MAINTENANCE SHOW

Plant Maintenance and Engineering Show and Conference, International Amphitheatre, Chicago, January 19-21.

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American Society of Heating & Ventilating Engineers, international heating and ventilating exposition, Convention Hall and Commercial Museum, Philadelphia, January 24-28.

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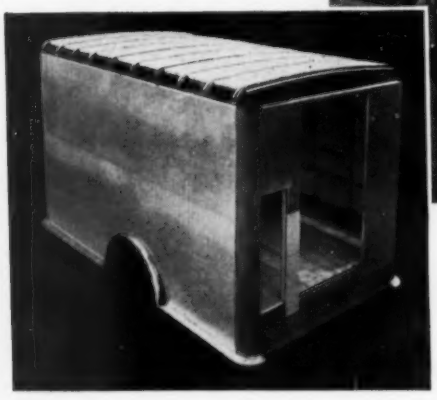
Panels and roof for this Nabisco truck body were fabricated from Electro Paintlok by McCabe-Powers Auto Body Co., St. Louis, Mo.



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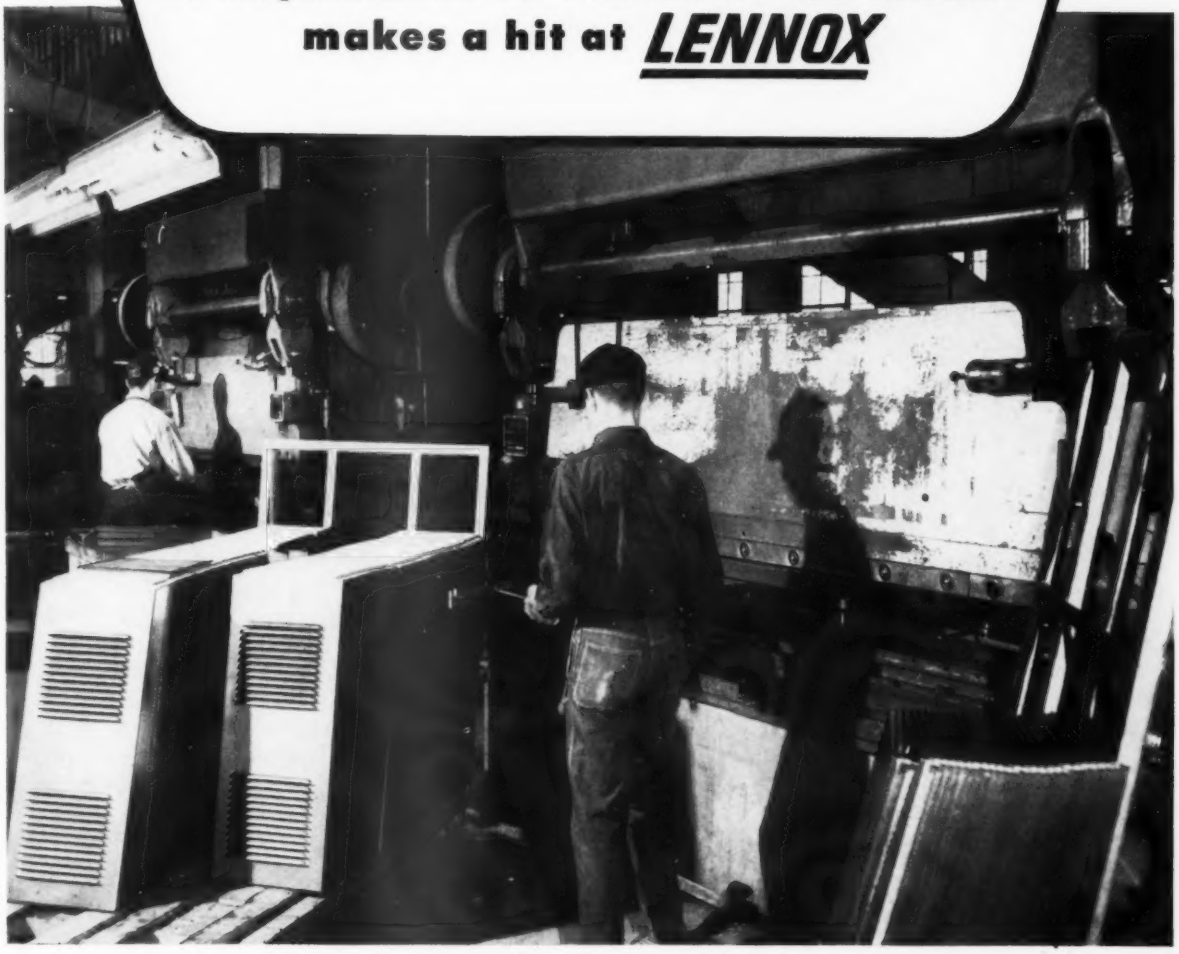

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Kitchen cabinet production at Lyon Metal Products

new slitting-shearing-edging line for coiled steel reduces raw material inventory and provides fabrication departments with constant flow of sheet steel

by Matt E. Heuertz • ASSOCIATE EDITOR

Lyon Metal Products, Inc., Aurora, Illinois, recently completed a modernization program which provides the plant with greater flexibility of operation in the manufacture of fabricated steel products for the domestic, institutional and industrial markets.

The company's line of products ranges from kitchen cabinets and filing cabinets to lockers, work benches, folding chairs and shelving. This article, however, will be concerned primarily with steel kitchen cabinet production.

The plant is so laid out that material flows directly from the steel processing department through fabrication, metal preparation, finishing and assembly. Fabrication operations are performed on both sides of a quarter-mile long material handling aisle extending nearly the length of the plant, and terminating in the finishing department which encloses two cabinet assembly lines.

Processing coil stock

Practically all steel used in the plant is procured in coils weighing between 14,000 and 15,000 pounds. Coil stock is delivered by truck to the head of the fabrication department, and stored adjacent to a new combination slitting-shearing-edging line. This new equipment has reduced raw material inventory as well as providing the fabrication departments with a constant flow of sheet stock, all trimmed and squared for use.

A 10-ton overhead crane is used for unloading truckload shipments of coils, for stacking the coils vertically on end, and for feeding the coils to the head of the slitting line. Lyon officials report a sizeable saving in storage space.

The gauges of steel used for kitchen cabinets range from 22 gauge zinc-coated stock for the fronts and doors to 20 gauge cold rolled stock for other parts of the cabinet. Brackets and other reinforcements are made from 16 gauge steel.

The slitting line furnishes re-coiled stock up to 48 inches wide, with as many as 12 coils slit simultaneously from a single mill coil. The slitter-recoiler can handle about 250 feet per minute. (Scrap from the slitter is rewound into bales of 300-400 pounds.)

Following re-coiling, the steel passes through a flying shear, is cut to size, roller levelled, and loaded on skids for removal to the different fabrication departments. (The third principal piece of equipment in this new coil processing line — the edger —furnishes steel strip up to six inches wide which is used primarily for parts of other Lyon products such as frames for folding chairs, lockers and work bench legs.)

Cabinet fabrication

Trimmed and squared to size for final fabrication, the skid loads of flat sheets for sides, tops, bottoms, doors, etc.. are delivered to the kitchen cabinet fabrication department by powered trucks. Following notching, flanging and other forming operations, the parts are welded together to form the main cabinet assembly.

Parts for the doors are delivered to a table where the outer and inner sides are welded together. Prior to welding, however, a piece of corrugated sound-deadening material is fit snugly between the two panels.

Miscellaneous parts, such as gussets, channels and base corner fillers, are fabricated nearby.

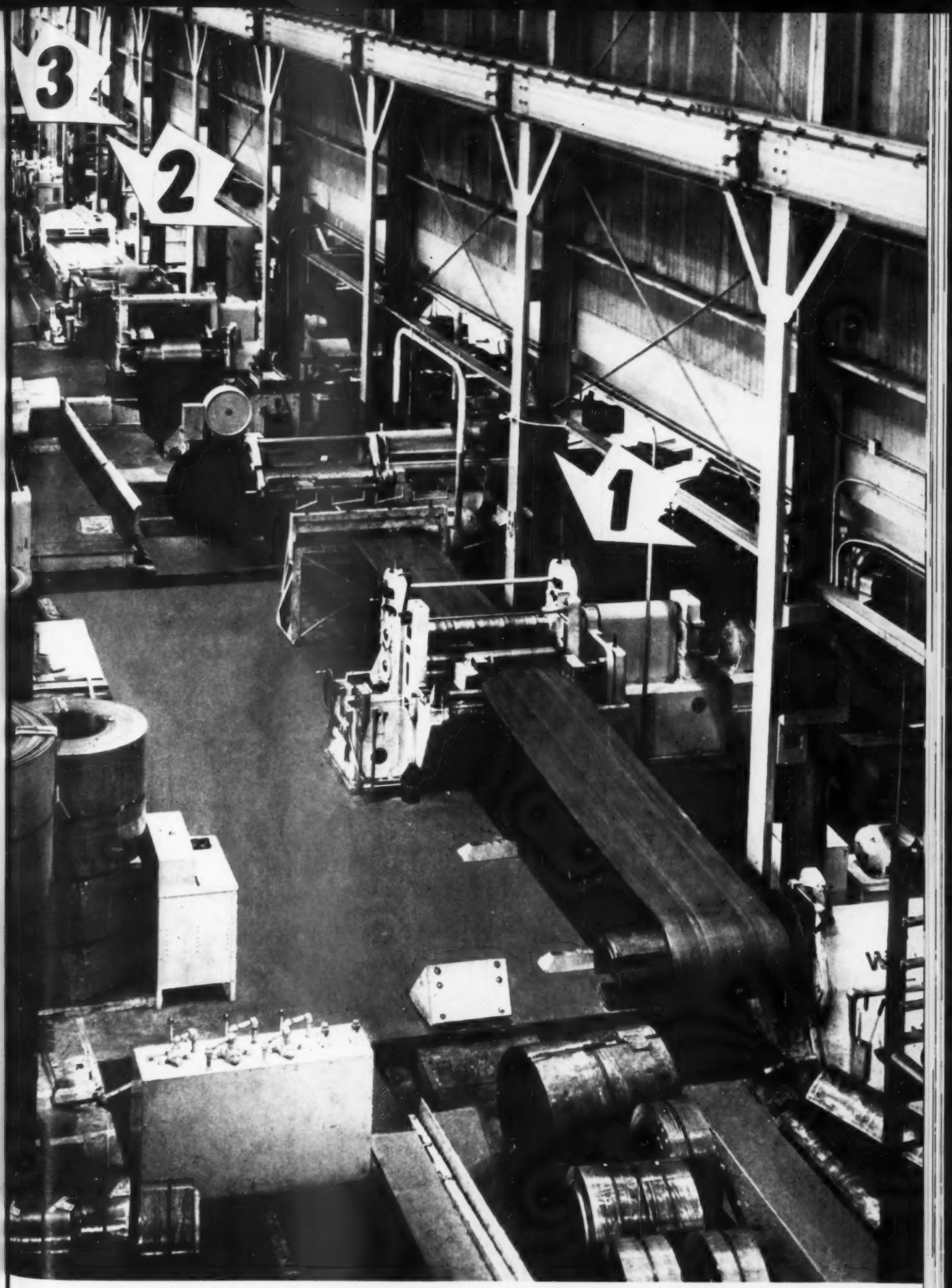
Metal preparation and finishing

Two continuous conveyors serve the metal preparation and finishing department — one for cabinets only, the other for doors and front panels.

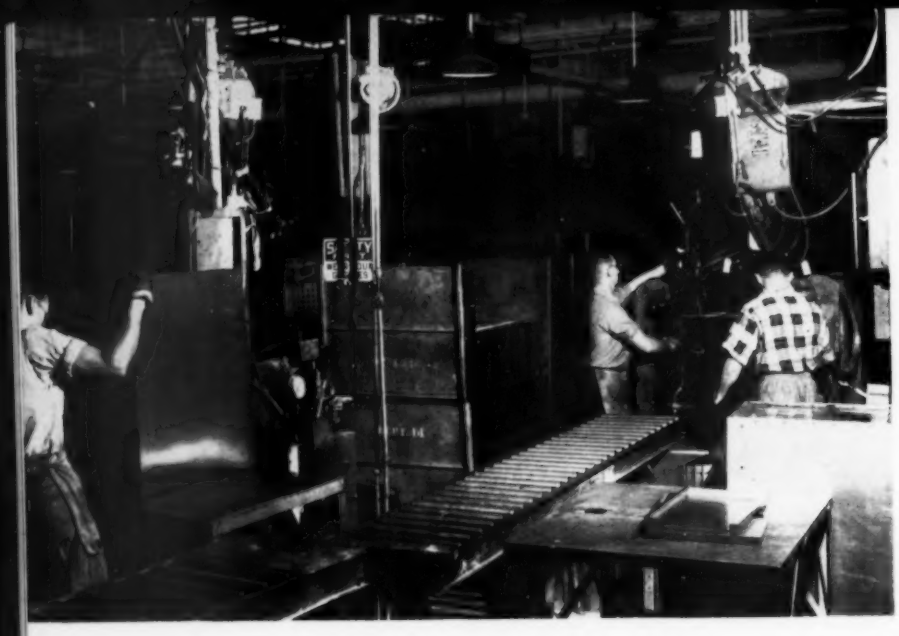
Following welding, the wall and under-sink cabinet assemblies are hung directly on a continuous conveyor which will carry them through the entire finishing cycle to the assembly area.

The conveyor first takes the parts through a five-stage metal preparation set-up which includes alkali cleaner, hot water rinse, phosphatizing, cold water rinse, and warm chromic acid. Following dry-off in a gas-fired oven, the parts are air hosed, inspected and sanded, if necessary, prior to "hot spray" finishing.

The finishing set-up consists of two in-line, water-wash spray booths with opposite set-ups to provide adequate spray coverage from both sides.

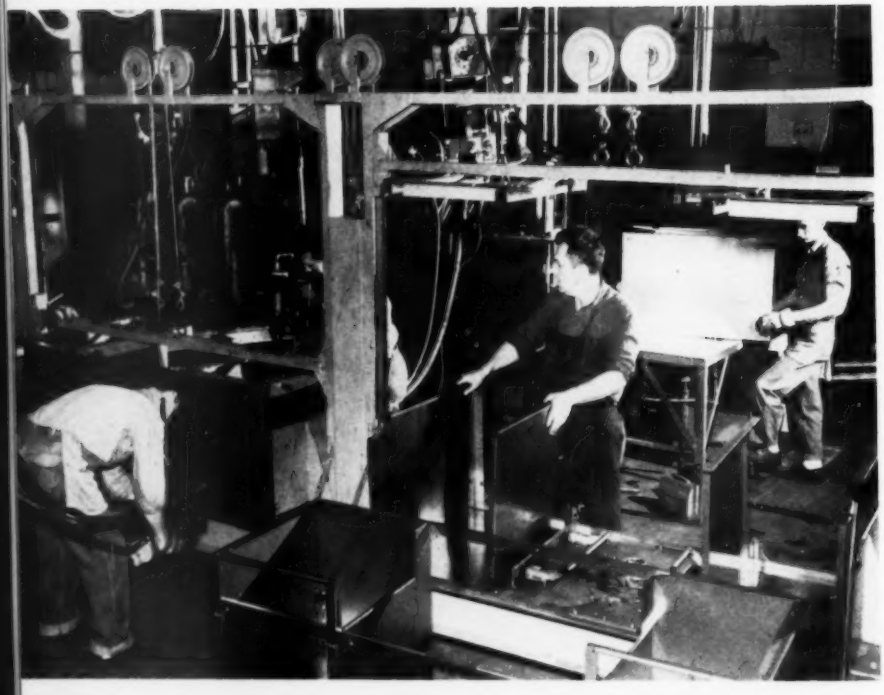


An over-all view of the new coil processing department: (1) slitting line, (2) shearing line, and (3) edger line.



Left: Assembling wall cabinet bodies by resistance welding. First, sides are welded to back simultaneously (right); Second operation (left) welds top to sides. Next operations (not shown) add the bottom and complete the "face" weld and cabinet squaring operation.

finishfotos



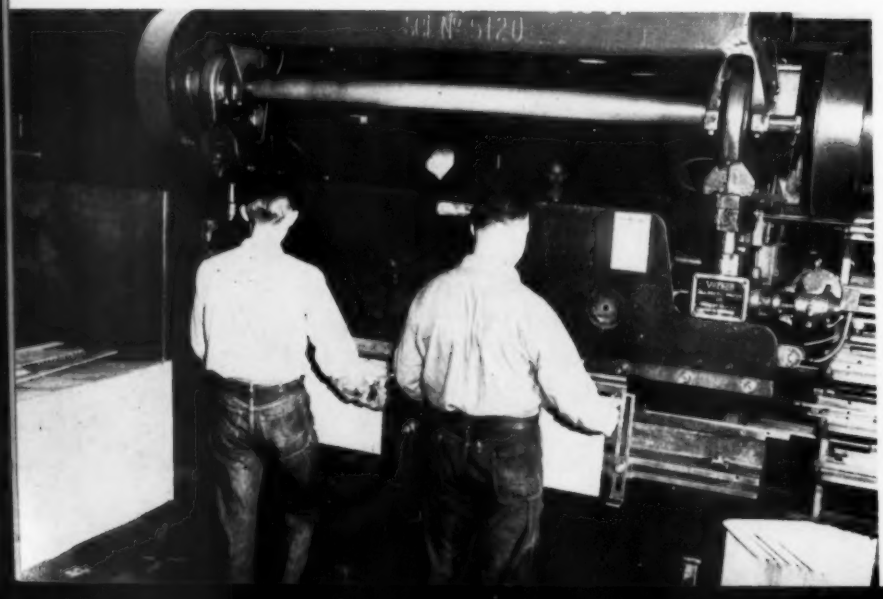
Each set-up includes an electrostatic spray followed by manual spray for reinforcement and coverage of recessed areas.

Heating the paint just ahead of application provides for excellent coverage with a coating thickness of 1.5 to 1.7 mils. (Temperature of the paint as it passes through the heater is estimated at 110-120° F.)

The continuous conveyor carries the painted cabinets into an L-shaped gas-fired oven where the coating is baked for about 35 minutes at 320° F. A space-conserving feature of this oven is that half of the unit is located on the outside wall of the building with the other half on the inside wall (opposite the finishing section) where the conveyor dips down at the head of the assembly lines.

Cabinet doors, fronts, and end panels are hung on another continuous conveyor — just across the aisle from where the cabinets are hung on their conveyor. (This is a "push-pull" type conveyor which will be described later.)

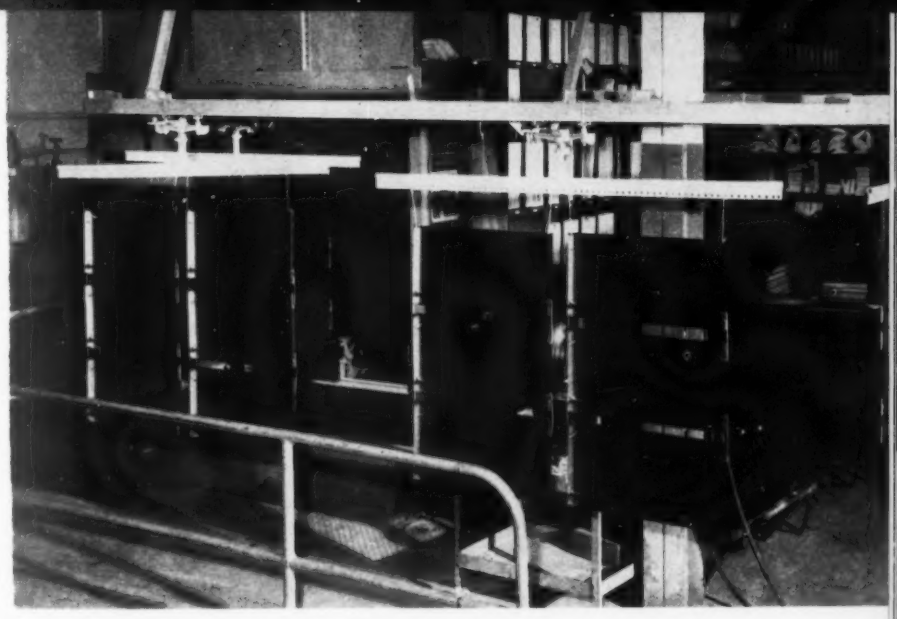
Following vapor degreasing, the parts air-dry and are wiped just ahead of the prime coat spray booth. In the booth the parts pass by first one electrostatic spray gun and then another situated on the opposite side. Both guns are mounted on vertical



Center: Undersink cabinet bodies are also assembled by resistance welding. In right background the side and back are sub-assembled. Bottom, back angle, center channel and top are added in foreground. Man in right foreground is locating cabinet parts in jig.

Left: Bending operation for "Twirl-o-matic" door for corner cabinet.

Right: Cabinet doors, fronts and sides made from electrolytic zinc-coated steel — which will receive a prime and finish coat—are degreased prior to finishing. Conveyor is dipping down into vapor degreaser at the left in photo.



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reciprocators. Next the parts are carried up into a U-shape oven where the prime coat is baked for 35 minutes at about 365° F.

After inspection and wiping, the parts enter the finish coat spray booth which has an electrostatic spray set-up similar to the prime coat. The parts are then taken up into another U-shape oven (adjacent to the prime coat oven) where the finish is cured at about 300° F. for 35 minutes.

The continuous conveyor for this finishing system is of the double-track type. One track (the pusher) carries the trolley, and the other track (the puller) carries the ware.

The special "push-pull" feature of this conveyor comes into play between the spray booths and the bake ovens. As the ware leaves the prime coat booth, it is automatically turned at right angle to the track to permit closer nesting of ware in the oven.

As the "fast" double-track conveyor makes contact alongside the "slow" oven conveyor, the "puller" track transfers the ware to the oven line. At the exit end of the U-shape oven, the ware is transferred back to the "puller" track, and is automatically turned back to the horizontal plane for travel through the finish coat booth.

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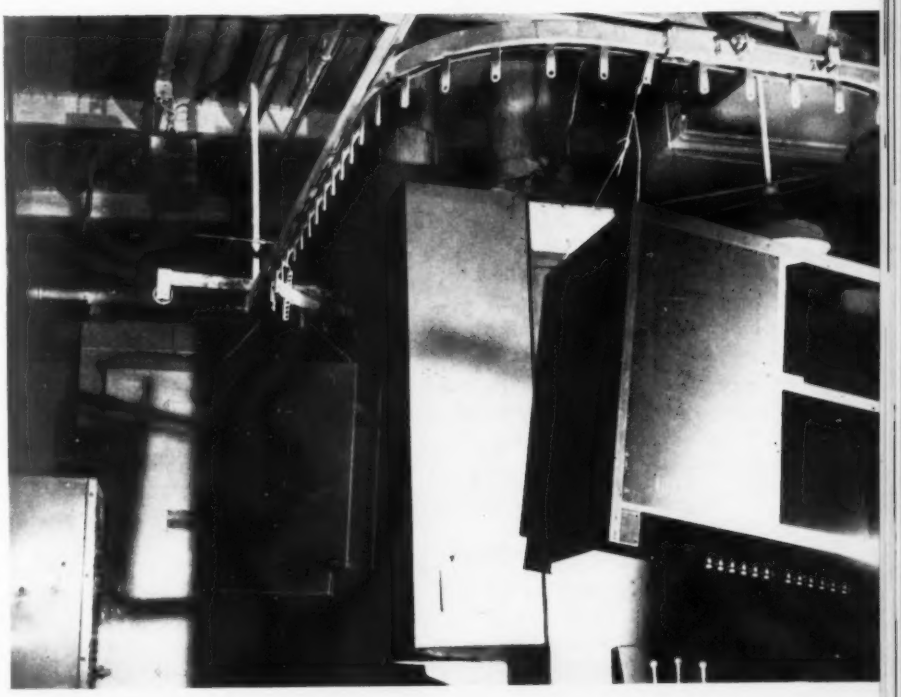
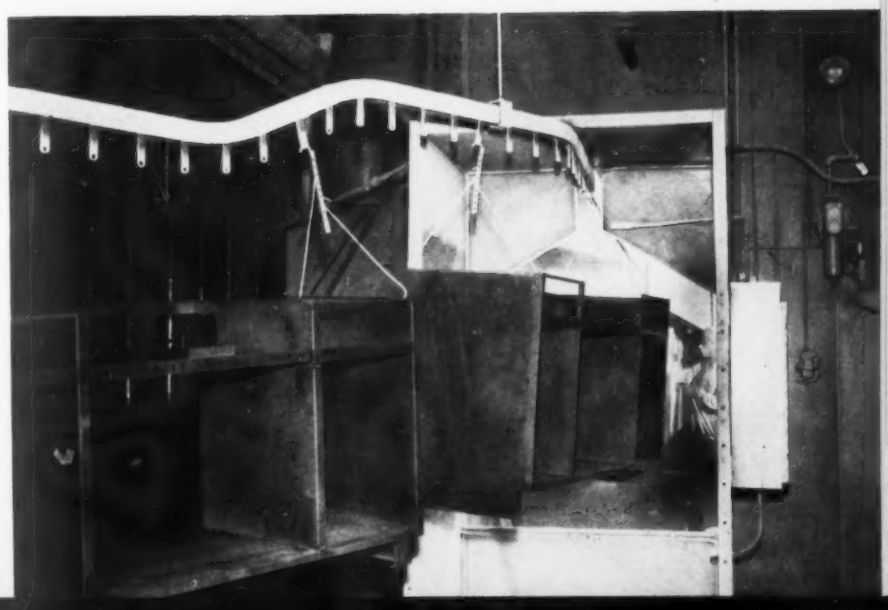
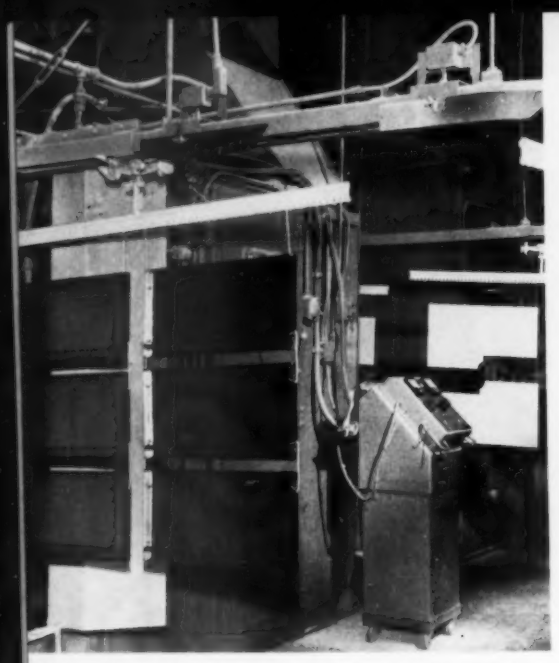
finishfotos



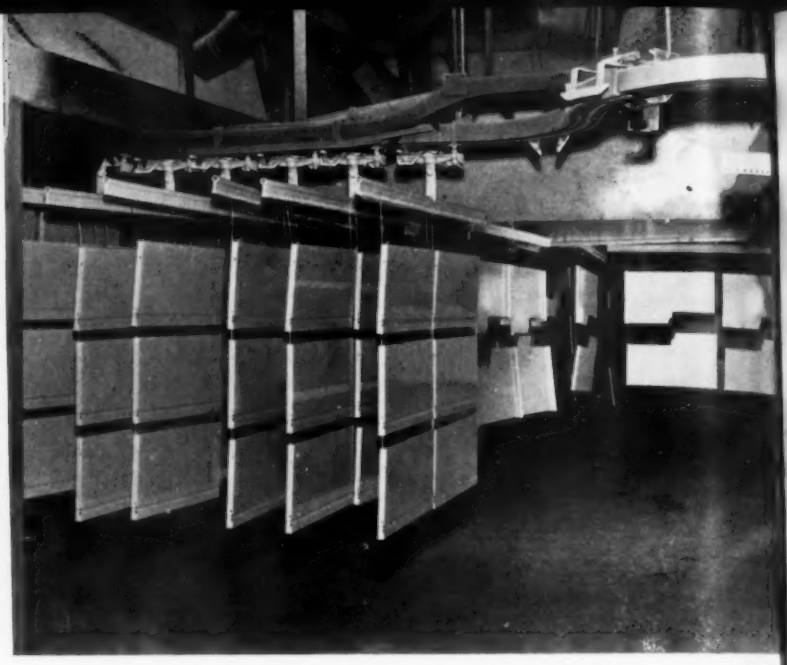


Center: Undersink cabinets entering five stage cleaning and phosphatizing chamber. These parts will then be finished in synthetic enamel.

Right: Undersink cabinets enter hot spray finishing set-up which includes two electrostatic stations and hand spray for touch-up. Wall cabinets are also finished on this line.



rime and finish coat area. On left parts are entering rime spray booth; in right background is finish spray ooth. Electrostatic spraying is used in both booths.



Two adjacent gas-fired U-shape ovens are used to bake the prime and finish The prime bake oven is on the left, with finish bake oven in center backgr The spray booths are to the right of the photo.

This transfer sequence, from one conveyor line to the other, is repeated again at the entrance and exit of the U-shape finish coat oven.

Paint mixing room

Directly below the finishing department is the paint storage and mixing room. Two mixing tanks for prime coat and four for finish coat are under constant agitation. The paint is pumped up to the spray booth, and is continuously circulated through the lines — even when the plant is closed down on weekends and for vacations.

Adjacent to the mixing room is a room containing the paint overspray collection tanks located below the water-wash spray booths.

Also on the lower level is a stripper tank where hangers are cleaned. The double-track conveyor dips down into this area and any hangers needing cleaning are shunted to a side track. After cleaning and servicing the hangers are put back on the conveyor. Spray booth gratings and air filters are also cleaned and serviced here.

Assembly operations

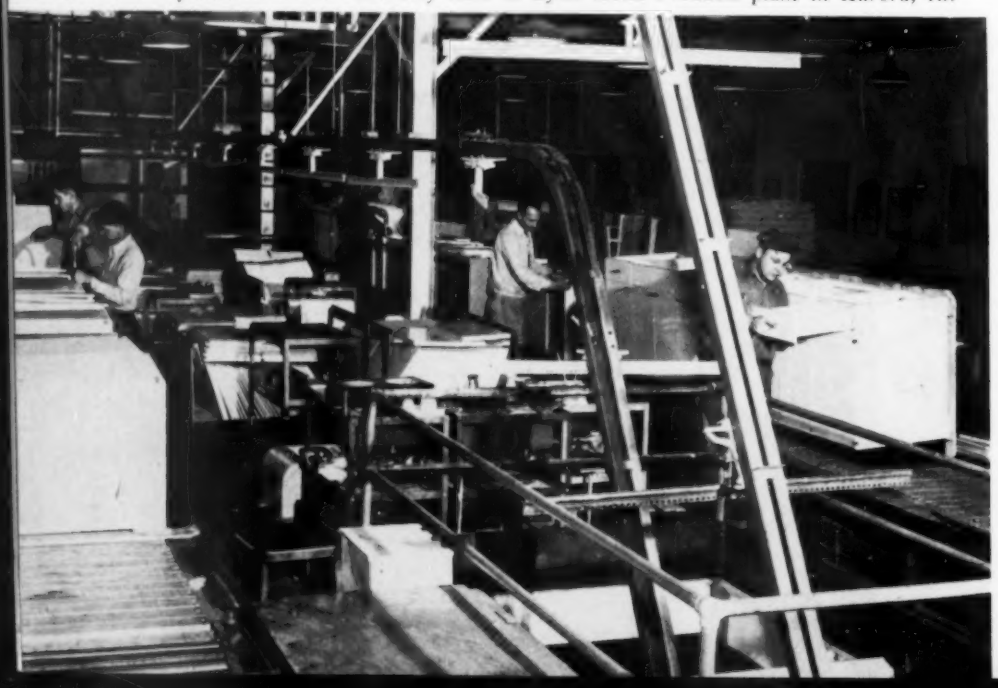
Both continuous conveyor systems feed the head of the assembly lines.

to Page 81 →

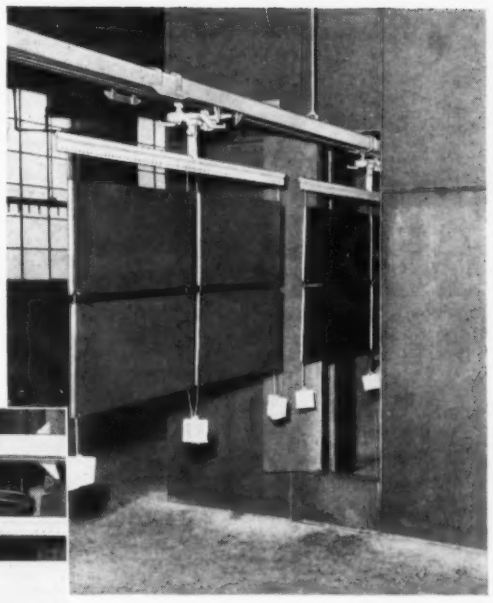
Power pack for undersink cabinet trostatic spray system is located of the booth.

Paint heater for the same line is lo on outside of spray booth.

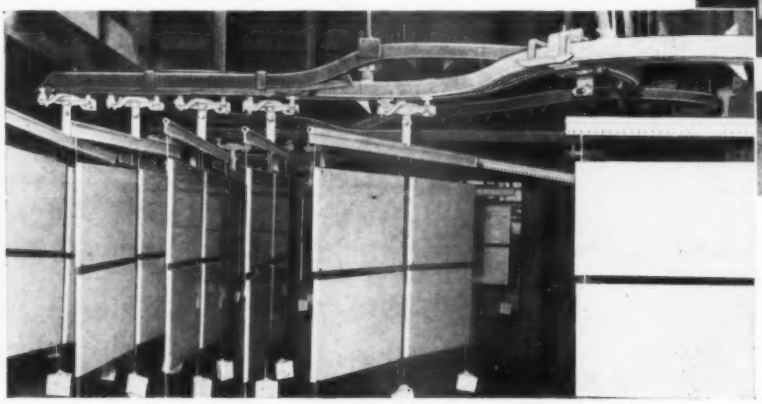
n over-all view of kitchen cabinet assembly lines at Lyon Metal Products plant in Aurora, Ill.



How "Zig-Zag"® Conveyors Solved Lyon's *Oven* Problem



Enameled panels leaving spray booth (right) on way to baking oven (left). Note how "pusher" conveyor No. 2 dips into position for transfer pick-up as indexing is effected at end of load travel on conveyor No. 1. "Free" track, from which loads are suspended parallels both conveyors in series throughout continuous run.



Kitchen cabinet panels entering automatic spray booth. Note how units are moving parallel to tracks on 6-foot carrier centers.

Six-hundred feet of baking oven requirement reduced to 30 feet—thanks to R-W Zig-Zag Conveyor! That's the money-saving experience of Lyon Metal Products Company due to a unique transfer and indexing arrangement of two Zig-Zag Conveyors engineered and installed by Richards-Wilcox. Here's how it works:

Two "power-and-free" conveyors (also called "pushers") operating in sequence, move kitchen cabinet panels, doors and drawer fronts through de-greasing, phosphatizing, spraying and baking to final assembly. Conveyor No. 1 carries units *on six-foot centers parallel to track* at required speed to oven entrance. Before entering oven, units are *automatically transferred* to conveyor No. 2. As transfer takes place, units are also *automatically indexed and bunched on 1-foot centers* for passage through oven at slower speed of one foot per minute—thus requiring only 30 feet of oven length instead of 600 feet!

This installation is typical of the many ways in which Zig-Zag Conveyors reduce plant cost, speed production, save time and space, and keep labor costs at a minimum, enabling manufacturing plants of all kinds to meet today's highly competitive conditions. Chances are that Zig-Zag can lower your costs, too. Why not call in an R-W conveyor engineer for consultation? There is no obligation whatever.

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Six of the seven infrared finishing ovens at Hotpoint's new Refrigerator Plant in Chicago are JENSEN PAN-L-HEAT. There's good reason. Shown below are *some* of the actual figures from a test comparing another well-known oven at Hotpoint. Identical pieces were processed. More facts are available — we will be pleased to send them on request. These facts are the answer to why more people every day are checking JENSEN PAN-L-HEAT before purchasing an oven. Write today for specific data or free brochure.

	JENSEN	OVEN "X"
POWER DEMAND	286 KW	465 KW
TOTAL TIME	4 minutes	5¼ minutes
CHAIN SPEED	16 FPM	12 FPM
WORK SPACING	56"	72"
LB. STEEL PER KW	25	9
LB. FRIT PER KW	2.5	1.8
LB. WATER PER KW	.63	.71
TOTAL BENEFICIAL HEAT (B.T.U.'s)	349,000	509,000
TOTAL INPUT	980,000	1,600,000
EFFICIENCY	48%	40%
AIR BLOWOFF REQUIRED	No	Yes

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Paint department headaches will disappear with Spee-Flo Hot Spray Heaters. Production costs will drop and consistent, all-weather quality control will be established.

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any other time of the year. We extend to you our best wishes for a
HAPPY HOLIDAY SEASON
May good health and prosperity be yours throughout the coming year.
Peace, love of life, kindliness and the brotherhood of all people.

Two top executives of Norge Division of Borg-Warner Corp. and its new distributor in Newark, N.J., area confer as president of the Newark concern signs distributorship contract. Left to right: Judson S. Sayre, Norge president; R. C. Connell, vice president — sales; and Thomas A. O'Loughlin, head of T. A. O'Loughlin & Co., Inc.

The New Norge

"we will hit $75,000,000 in 1954 and probably pick up enough tempo to reach $120,000,000 in 1955"—Sayre

Editor's Note:

Each January, *finish* publishes a complete self-cover special section devoted exclusively to a leading manufacturer of Appliances and Fabricated Metal Products.

The January, 1955, Special Section will cover the "The New Norge", including special articles by top management and comprehensive illustrated coverage of manufacturing operations.

"THE New Norge", "Hot Line", "Fast Track" are among the terms being tossed around the appliance industry currently in reference to Norge Division, Borg-Warner Corporation. Following a "low spot" in the company's history as a major appliance producer, recent reports include welcome news for those who are interested in the health and welfare of the industry.

At a recent press conference Judson Sayre, Norge president, and R. C. Connell, vice president-sales, offered these facts for the six-month period from May 1 to November 1, 1954:

1. Sales volume of the Norge Division in the past six months doubled that of the comparable 1953 period.

2. Home appliance sales volume in dollars reached a total almost 90% of that for all of 1953. "We will hit $75,000,000 in 1954 and probably pick up enough tempo to reach $120,000,000 in 1955," Sayre stated.

3. Employment increased from 2,614 to more than 4,373—67 per cent.

Important contributions to Norge's recent rise

When asked to what he attributed the gains as reported, Sayre listed the following as important contributing factors:

1. We had a top appliance line on May 1, 1954.

2. We added new products . . . one appliance we brought to market is a clothes dryer which sells for $149.95 (some $20 to $40 under competition) and works without an expensive installation. In August we introduced a new gas and electric range line . . .

3. Our next step was to *bolster* our *executive ranks* . . . put muscles in our management sales team by creating five new positions.

4. Expanded our market coverage by adding new distributors and, in some cases, by replacing others.

5. Since May 1, we have been adding dealers at the rate of 1,000 a month.

6. Because we had increased market saturation, we could spend more money for advertising during this six-month period than we spent all last year.

Norge plans to spend $4,000,000 for advertising during 1955 — a sum four times the allocation for advertising in 1953.

In answer to specific questions from press representatives, Sayre and Connell covered many phases of the business. The following represent selected brief information "bits":

1. 33% of Norge distributorships have been changed.

2. 1000 dealers a month being added — largely in towns where Norge had no distribution.

3. Receiving many voluntary applications from distributors — "they want to be on a 'ball that's rolling' ".

4. Working closely with independent producers of radio, television and electronics — "a white line for the independent producers".

5. Business good but new distributors just getting organized — "will be going in '55".

to Page 64 →

A breakdown of sales increases by products shows:

First — Automatic Washer	— 305% of 1953 period
Second — Clothes Dryer (electric)	— 300% of 1953 period
Third — Clothes Dryer (gas)	— 298% of 1953 period
Fourth — Home Freezers	— 179% of 1953 period
Fifth — Ranges (electric)	— 178% of 1953 period
Sixth — Water Heaters	— 167% of 1953 period
Seventh — Refrigerators	— 153% of 1953 period
Eighth — Ranges (gas)	— 126% of 1953 period

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McDANEL Porcelain *Laboratory* Mill Jar

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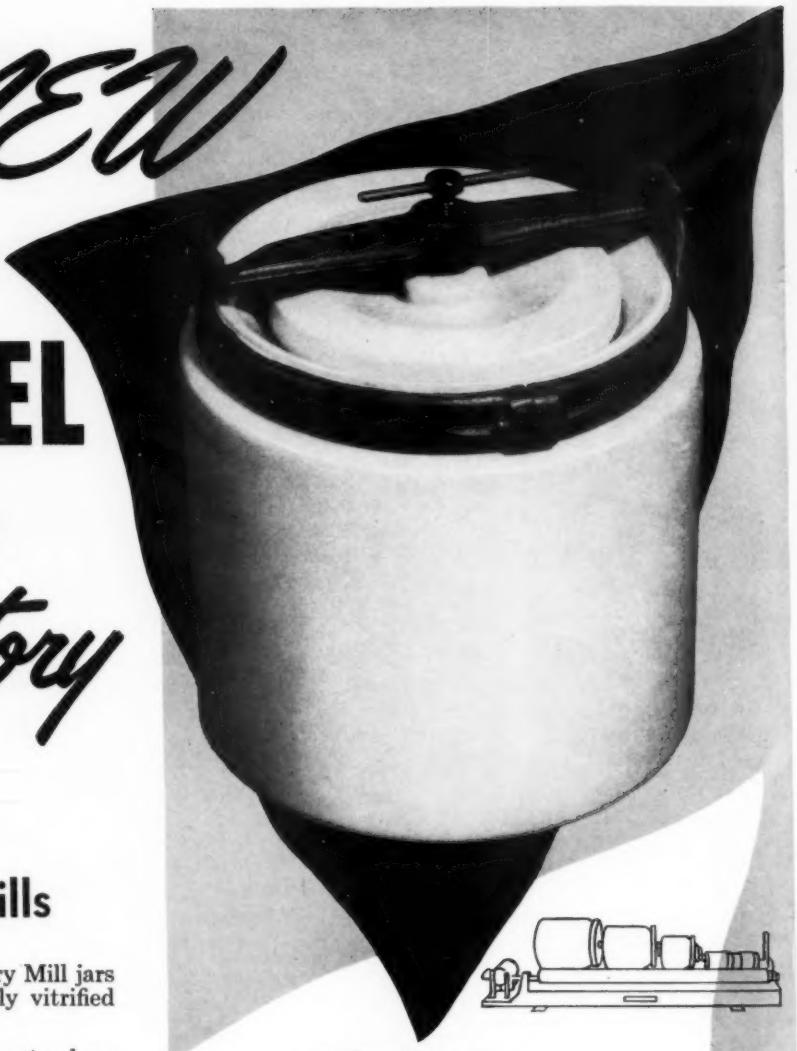


These new McDanel Laboratory Mill jars are made of white, clean, fully vitrified porcelain.

They are tough, durable, and extra long lasting.

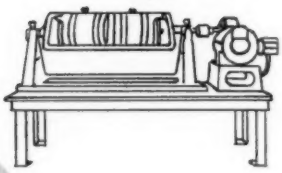
May be cleaned easily and quickly, inside and outside.

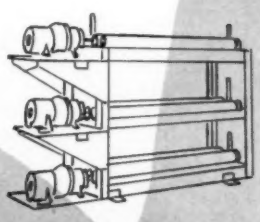
Hardware is of fine bronze; gaskets are of rubber or neoprene.

Furnished complete in standard one gallon size with 10 pounds charge of porcelain balls (7 lbs. 1" balls, 3 lbs. of ¾" balls.)

Excellent in every way for both Roller and Cradle type Mills.

Write for McDanel Catalog





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McDANEL REFRACTORY PORCELAIN CO.
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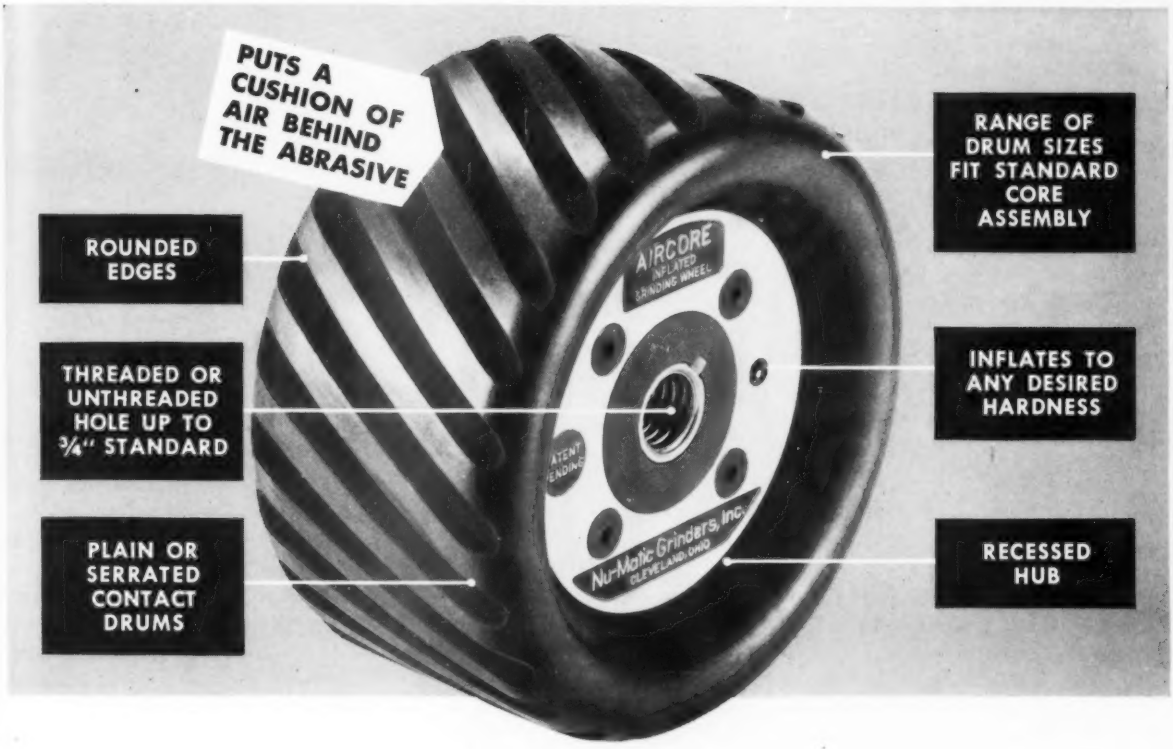


New Aircore Grinding Wheel cuts faster... features interchangeable contact drums

One universal core assembly and a range of contact drum sizes — these are the ingredients for a new line of Nu-Matic Air-Inflated Grinding Wheels. Changing contact drums is like changing from conventional tread tires to snow tread tires on your car. The new Aircore models provide these features:

FASTER FINISHING—With an Aircore Grinder, you get up to 3,000% greater abrasive contact area than with hard-wheel grinders. Means a greater area finished with each pass.

BETTER WORK—No herringbone patterns. No swirl marks. Aircore Grinder produces a smooth, straight-pattern finish comparable to a hand finish. Rough cutting and blending in one operation.

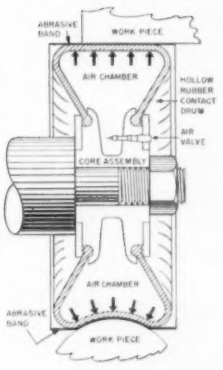
INCREASED BELT LIFE—Users report savings in abrasive costs up to 80%. Fewer grit sizes required in most cases.

FOLLOWS CONTOURS—The resilient contact drum shapes itself to the contour of the work surface — combines contouring with fast, smooth cutting.

LIGHT WEIGHT—The Model 525 weighs only 15 ounces. Size for size the lightest grinding wheel on the market.

COMPARE AT OUR EXPENSE—Send for 25-day free trial. Give job requirements and type and size power tool used.

NU-MATIC GRINDERS, INC.
8224 Carnegie Ave. Cleveland 3, Ohio



The Nu-Matic Air-Inflated Grinding Wheel is built like an auto tire — flattens out at point of contact — contours to work surface.

Here you see the large grinding area that an Aircore gives on flat surfaces. A sheet of glass is pushed against an Aircore wheel that has been inflated to 3 pounds pressure.

Selection characteristics for contact grinding wheels

a basic information piece on contact wheels as used for finishing and polishing metal, wood, glass and plastic

by S. L. Johnson • MANAGER, NEW METHODS DEVELOPMENT SECTION, MINNESOTA MINING AND MANUFACTURING COMPANY, ST. PAUL, MINNESOTA.

finish One of the significant contributions to the advancement of industrial grinding and finishing with coated abrasives, and one which is perhaps only partly understood, is the contact wheel — the wheel that supports the abrasive belt and provides the working surface behind it.

The development of coated abrasive belts and contact wheels has virtually revolutionized methods of grinding, finishing and polishing as applied to metal, wood, glass and plastics. In the last quarter century the advantages of belt operations have been brought into the shops for the first time, and with them have come faster and more economical operations, resulting in finer finishes.

Up to about 1928 coated abrasives were seldom used as a grinding medium in the metal-working trades, although they were used for some intermediate and final finishing. Makers of coated abrasives realized the potential market in the metal-working industries and began to develop new grinding methods — many of them employing a contact wheel. Since then a variety of abrasive belts — and machinery and contact wheels to go with them — have been developed to meet industrial requirements.

Contact wheels not only support the abrasive belt, but the action of

Left: For heavy grinding, a plain-faced contact wheel of high durometer used behind a coarse coated abrasive belt in an operation requiring extra pressure. The wheel used here is mounted on a floor backstand unit.

Below: Mounted on a swing grinder, a contact wheel and coated abrasive are used for grinding and finishing work too large or heavy to be taken to backstand. A small diameter, plain-faced contact wheel is being used here for polishing.

type of ma- employs a act roll for pol- g flat steel sheets.

the wheel and its effect on the belt increases cutting efficiency, extends belt life and improves finishes.

General types of contact wheels

Most contact wheels are made of rubber or cloth.

Cloth wheels fall into three general categories: (1) compress canvas, (2) laminated buff section, and (3) folded and crimped buff section. Hardness of cloth wheels is denoted by soft, medium or hard, with variations such as super-soft or extra-hard. Cloth wheels are generally used for finishing and polishing operations.

Rubber contact wheels are plain-faced or serrated. Within the serrated classification there are several styles, design for many industrial jobs. A serrated wheel has a series of lands and grooves which usually angle across the face of the wheel. The width and angle of the lands and grooves vary from wheel to wheel according to its use.

Thin lands and wide grooves running at a 45-degree angle, for example, on a hard wheel, are generally used with a coarse grit abrasive belt for aggressive stock removal on large areas. Lands and grooves of equal width running in a 15-degree helix on a softer wheel are usually used with a finer grit abrasive belt.

Flat or plain-faced wheels are used at times when unit pressure is high enough to get the necessary breakdown of abrasive belt mineral for continuous cut. Such wheels would be used in removing sharp gates from castings, in grinding or finishing pieces of small diameter, and on soft metals — such as brass, bronze, manganese and aluminum.

Hardness measurement of rubber wheels

Hardness of a rubber wheel is measured by its durometer. Durometer range falls between 10—which would apply to sponge rubber — and about 100, which is described as "rock hard". Without going into sponge, the softest rubber wheel has a durometer of about 20. By comparison, an automobile tire has a

Formed contact wheels are made for special operations such as polishing highly contoured surfaces. In this instance the contact wheel is mounted between a driver pulley and an idler pulley.

durometer reading of about 65.

Durometer and hardness is an essential consideration in the selection of a contact wheel to do a given job.

Air-inflated grinding wheels

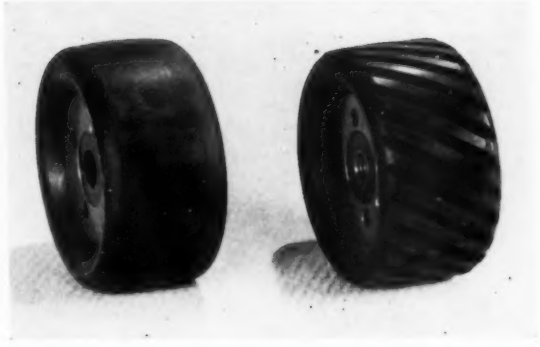
Air-inflated wheels have long been used in the wood-working industry. Recently, however, pneumatic wheels of more rugged rubber construction have gained wide acceptance in the metal-working field. Such wheels are available in several sizes, both plain and serrated.

The aggressiveness or durometer of pneumatic wheels is controlled by the amount of inflation; and their balance and weight make it possible to use them on portable tools with abrasive sleeves, as well as on larger equipment with abrasive belts.

Because contact wheels are not subject to direct contact with the stock, they have a long life; however, they do wear, and are designed so that as they wear they retain as many of their original properties — such as balance, shape and hardness — as possible. The ability of a contact wheel to retain its original properties as it wears is called stability, and is an important factor in a wheel's performance.

Due to the number of jobs for which abrasive belts and contact wheels are used, wheel sizes vary — from less-than-an-inch across to wheels with a face up to 86 inches wide. The latter type — often called contact rolls — are used for flat sheet grinding and polishing behind abrasive belts of corresponding widths. Wheel or roll diameter may vary from 1 inch to 18 or 20 inches, depending on use.

Contact wheels are employed on several types of machines, most popularly on a backstand installation powered by a bench or floor lathe. The backstand is used where work is light enough to be brought to the machine. In instances in which the work is too heavy or too large to be moved easily, an abrasive belt and contact wheel are fitted on a swing grinder, which is suspended from a track and is highly mobile.



Air-inflated wheels, made of rubber, are available in several different sizes with plain-face or serrations.

For grinding and finishing pieces with sharp contours, contact wheels are pre-shaped to fit the piece that is being worked, with the abrasive belt following the contour of the wheel.

Speed control is essential

Essential in the effective use of abrasive belts and contact wheels is speed control, measured in surface feet per minute. This generally runs from 3,500 to 10,000 s.f.p.m., depending on the type of wheel, the grit of the coated abrasive belt, the kind of stock (metal, wood, glass or plastic), and the purpose of the operation (grinding, finishing or polishing).

Proper speed is a vital factor in the rate of cut, length of belt life and the attainment of the desired finish.

Six selection characteristics for contact wheels

The following characteristics enter into the selection of a contact wheel to do the best job:

The harder a contact wheel, the faster an appropriate abrasive belt will cut . . .

The softer a contact wheel, the slower the rate of cut will be, and the better the finish (most soft wheels will become harder as speed is increased, however; so speed must sometimes be sacrificed for conformability) . . .

Wheels of smaller diameter increase the rate of cut . . .

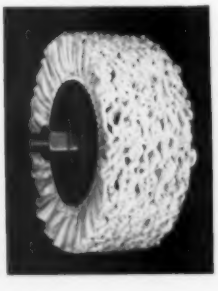
Large diameter wheels contribute to better finishes than wheels of smaller diameter . . .

Serrated wheels with wide grooves and narrow lands are more aggressive because of higher unit pressure than wheels with narrower grooves and wider lands . . .

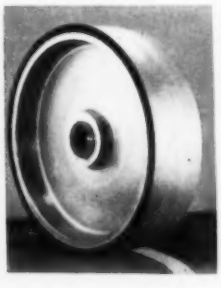
A plain-faced contact wheel contributes to a better finish than most serrated wheels, and will minimize extreme shelling or mineral loss problems. (On a helix-faced serrated wheel, used for polishing, the lands and grooves tend to soften the wheel, rather than increase rate of cut).

The proper selection of any contact wheel must be, for the most part, a compromise, which will usually result in selection of a wheel offering the highest rate of cut, the most desirable finish, best comformability to the surface being ground or finished, and which contributes to longest abrasive belt life.

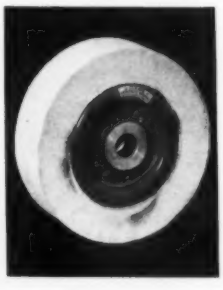
Crimped buff section wheel mounted on lathe spindle.



A flat or plain-faced rubber contact wheel and hub.

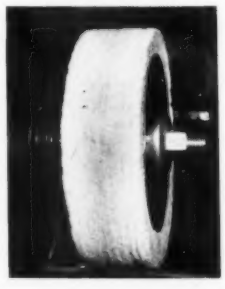


A cloth-type contact wheel used for finishing and polishing.



Serrated rubber contact wheel used for stock removal.

A laminated buff section wheel mounted on a lathe spindle.



Economical . . . clean . . . easy to apply—Stuart's *New* Excelene Grinding and Polishing Oils improve surface finish and increase belt life production as much as 50 to 100% on many abrasive belt grinding and polishing operations. Two types of Excelene, FD for ferrous metals, and NF for non-ferrous metals, are available from your abrasive belt distributor in easy-to-use 12 oz. pressurized cans.

It's easy to *spray production* on your abrasive belts with Excelene. Here are two examples:

A jet engine parts manufacturer obtained 275 pieces per belt polishing type 403 stainless steel dry. Excelene FD Polishing Oil increased belt life to more than 600 pieces each.

An aluminum cooking utensils manufacturer was getting 75 pieces per belt with grease stick lubrication—and using four gallons of solvent per operator each day to clean the belts. Excelene NF Polishing Oil not only kept the belt clean but increased belt life to 135 pieces each.

Call your abrasive belt distributor today—or fill out the coupon at right.

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Phone MArket 4-2256

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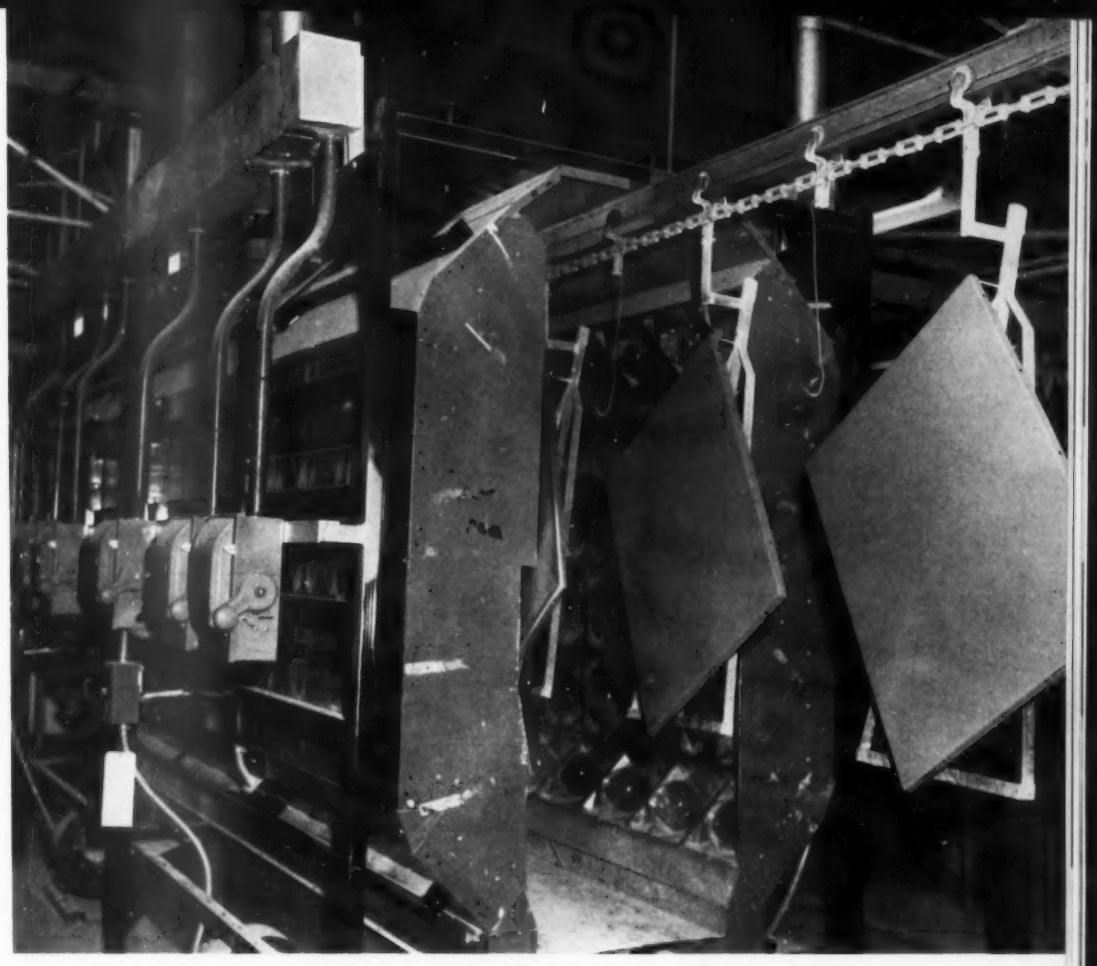


Vertical infra-red dryer used at Athens Stove for drying ground coat ware.

Two years of infra-red drying

a sequel* to an exclusive article by same author in December issue a year ago

by F. O. Mahery, Jr. • SECRETARY-TREASURER, ATHENS STOVE WORKS, INC., ATHENS, TENN.

WHILE the Athens Stove Works has been in the stove manufacturing business since 1924, we have had our enamel plant only since February 1952.

In the planning of a new plant, one naturally tries to eliminate the difficulties and shortcomings that are experienced by others in the same industry. The process of drying the water from wet porcelain enamel pieces by conventional drying systems had deficiencies with which I assume you are all well acquainted. Conferences, discussions, and witnessing laboratory tests indicated to us that an infra-red drying system would give us a system of few or no shortcomings.

It offered such properties as:

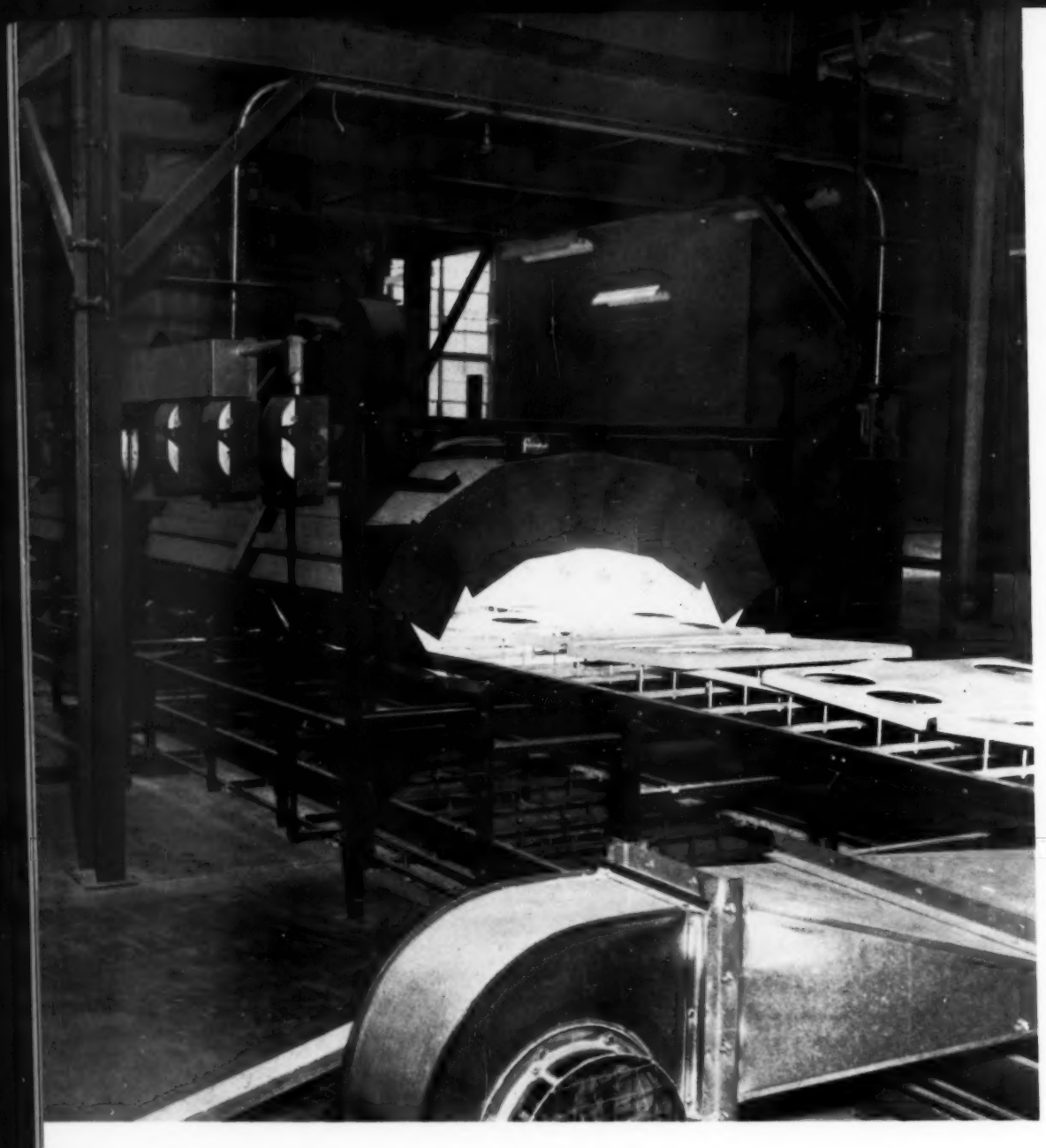
1. Quick starting — no warm-up time.
2. Instant shut down with no damage to oven or ware.
3. No by-products of combustion which discolor, or affect the ware.
4. Very little or no dust caused by recirculating or heat transfer systems.
5. A minimum amount of floor space was required for installation.
6. Required very little maintenance and cleaning.
7. Does not require operator or thermostatic control.

Two units were engineered and constructed to meet the requirements and production needs of our plant.

Vertical dryer for ground coat

One unit which we will identify as

*Adapted for *finish* from a paper before the 1954 PEI Forum.



Horizontal infra-r dryer, used for d ing cover coat wa is located at the o going end of the au matic spray room

our *ground coat dryer* is of the vertical type having a bank of lamps on either side of the monorail conveyor and shaped in a broad "U" so that heat is delivered to both sides of the ground coated ware after it has been dipped and hung on the conveyor. The conveyor is designed to operate at variable speeds of 10 ft. to 30 ft. per minute. In 1951 the dryer coat cost approximately $7,000 installed. The dryer occupies a floor space of: 14 ft. 8 in. in length, 5 ft. 1 in. in width, and 10 ft. 6 in. in height which includes the exhaust blower.

A lamp bank of 192, type T 40, 1000-watt infra-red lamps supply the heat. The lamps are so wired that two or more rows may be cut off when not needed. The center distance between the two lamp banks is 42 in. and at top and bottom 25 in. The reflectors are 11 in. square, gold plated and engineered to give maximum efficiency. The gold plate is said to give 10% more efficiency than standard reflectors. Water vapor driven from the ware in the process of drying is exhausted into the building by a series of blowers. One is located on top center and four located at base of lamp banks and blowing up behind the reflectors — also acting as a method for cooling the bases of the lamps. The distance from the dip tank to the ground coat dryer is approximately 40 feet.

Horizontal dryer for cover coat

The second unit we will identify as the *cover coat dryer* is a single horizontal "U"-type placed over a conventional pin-type conveyor and is located at the outgoing end of the automatic spray room. The conveyor is designed to operate at variable speeds of 10 to 30 ft. per minute. In 1951 this dryer cost $4,200 installed. It occupies a floor space of: 14 ft. 8 in. in length, 6 ft. 4 in. in width, and 7 ft. 10 in. in height which includes exhaust blowers.

A lamp bank of 96 type T 40 infra-red lamps supply its heat. The same

type reflectors are used for the ground coat dryer. The center distance from ware to lamps is 17 in. and 9 in. on each side.

The blowers for exhausting the water vapor are located on top of the dryer and originally emptied into the building. Since installing we have added duct work and now have it blowing on the conveyor as it comes out of the washer.

Cost of operation

Our electric power is purchased under contract from the Athens Utilities Board, who in turn purchase from T.V.A., also on contract basis. Our rate schedule is shown in the table below.

Maintenance and repair

The maintenance and repair cost have been satisfactory. Cleaning of dryers is very easy and requires only dusting lamps and reflectors, or cleaning with a non-abrasive cleaner. Lamp replacement since starting operation in 1952 has not been unreasonable.

We have purchased a total of 131 bulbs. Of the 131, we now have in stock 48. This gives a net replacement of 83 bulbs at a cost of $7.50 each, or a total of $621.50 for a period of 29 months. This is the break down of burn-out and breakage:

	Burn-Out	Breakage
1952	31	22
1953	4	10
1954 to July	11	5
	46	37

All breakage has occurred in the ground coat dryer. The burn-out has been 32 for the ground coat dryer and 14 for the cover coat dryer. The lamp manufacturer estimates the life of a lamp to be 5000 hours. Of the total 288 lamps in the original installations, 205 are still in use. Our estimate based on a 40-hour week shows these 205 bulbs have been in use approximately 5600 hours.

We have made no replacements of reflectors and they show no wear.

We are at the present drying in a 9-hour shift sufficient ware to produce an average of 350 stoves.

Some data on the drying time of representative pieces of ware is listed in the tables above.

Our enamel plant superintendent states that in his twenty-five years of experience in the enameling industry in working with, and seeing in operation, the many conventional type drying systems, infra-red comes nearer to perfection than other methods.

Ground Coat Dryer

Item	Steel gauge	Sq. Ft.	Fab. Wt.	Conveyor speed ft. per min.	Approx. drying time	Pieces per hanger
Body sides	20	5.04	7.56	21	47 Sec.	1
Oven door panels	20	2.37	3.56	22	40 "	2
Backguards	20			21	47 "	2
Manifold panels	20			22	40 "	3
Oven door lining	20	2.67	4.00	16	56 "	2
Oven side lining	22	3.85	2.85	27	31 "	2
Broiler runners-broiler door linings — broiler pan and grills other small items				30	29 "	3 to 6

Cover Coat Dryer

Item	Conveyor speed ft. per min.	Approx. drying time	How placed on conveyor
Body sides	18	49 Sec.	1-across
Oven door panels	15	59 "	Cover (3) Conveyor
Backguards	15	59 "	Cover conveyor
Manifold panels	15	59 "	Cover conveyor

Cost of Operation

If the customer's demand for the month is 50 kilowatts or more:
Demand charge: $1.00 per month per kilowatt of demand
(This is a 30 min. integrated demand charge)

Energy charge:

First 15,000	kilowatt-hours	per	month	at	0.8	cent	per kwh
Next 25,000	"	"	"	"	0.6	"	" "
Next 60,000	"	"	"	"	0.4	"	" "
Next 400,000	"	"	"	"	0.3	"	" "
Additional energy					0.275	"	" "

Our kwh cost including demand charge based on annual usage for 1953 was 9.17 mills. This was slightly less than the 9.9 mills average for all industry in our community. The ground coat dryer has 192 1000-watt lamps and the cover coat dryer has 96 1000-watt lamps.

1000 watts = 1 kw
1 kw use per hour = 1 kwh

Therefore, the cost of operation of the ground coat dryer is:

192 (100-watt lamps) = 192 kw
1 hr. use = 192 kwh x .00917 = $1.74 per hr.
8 hr. day = $14.08 per day

The cover coat dryer which is exactly half in size and number of bulbs, therefore, would have an operating cost of $0.88 per hour, or $7.04 for an 8-hour day. Operating under the most favorable of conditions these dryers could be operated at off peak operation with the present rate structure of 1/3 the above mentioned cost.

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What they say about COLOR

representatives of Sears and General Motors discuss trend to color at recent annual meeting of the Porcelain Enamel Institute

G. A. Baehr • SUPERVISOR, PLUMBING FIXTURES, SEARS, ROEBUCK AND COMPANY

"question of color must be met head-on — and a decision reached"

"IN any appliance or sanitary ware program designed to promote additional business, the question of color must be met head-on and a decision reached.

"There has been an understandable reluctance on the part of manufacturer and merchant alike to embark on an all-out color program. Factory runs would be curtailed, production reduced, inventories duplicated, color matching—current and future—present a real problem. Costs would tend to increase; warehouse and display space would be inadequate. All of these are among the objections raised. But it is always dangerous to run counter to the wishes of the consumer — and the consumer has spoken.

"*Color is here.* In bath equipment an already large percentage of color to total is growing larger each year. Kitchens, to a surprising extent, are in color although accurate data is not available, as such kitchens are generally *wood* and depend upon the local decorator-painter for colors. Obviously here is a market for steel that is ready for the ingenious, courageous manufacturer-merchant combination. Other kitchen appliances in color must follow. *Here the Porcelain Enamel Institute could blaze a trail to the benefit of all by standardizing colors throughout the industry.* And color at or near the cost of white is entirely practical. Hence, low cost, availability and standardization of modern fixtures in color would be in demand not only for new home installations but would create desire in the larger modernization market. And this latter market must be reached if satisfactory volume is to be attained."

L. E. Kiefer • CHIEF PRODUCT DESIGNER, STYLING SECTION, GENERAL MOTORS CORP.

"inevitable that color would come to the kitchen"

"ALMOST all people in the design field for many years have advocated the judicious and tasteful use of color as one of the elements in the design of any product. Completely detached units such as automobiles have forced themselves from the restraint of 'any color as long as it is black' for many years even though here, too, the problem of inventory is present. Plumbing fixtures have overcome this limitation and are available in a variety of handsome colors, to capture the fancy of the prospective purchasers and widen the decorative opportunity of the home. It was inevitable that color would come to the kitchen, the forgotten orphan of the home, and it remained only for us to find a successful way to apply it.

"We assembled over 1,000 samples of various standard materials which find themselves used in the kitchen today to aid us in our consideration of the final colors to be put in production.

"This collection of counter top materials, flooring samples, wallpapers, etc. was sorted into color families and only then was the color selection made. Numerous refrigerators and ranges were painted until the best possible choices were made in relation to other existing materials and I am happy to say that our choice has stood up well during this past selling season. I count it a distinct step forward in providing the customer a new pleasurable choice in the merchandise he buys."

complex shapes molded in plastics by General American

Many manufacturers are amazed to see that complicated parts can be molded in minutes by General American. For instance, complete television cabinets, 300 per day, can be turned out on machines like this huge 3-story, 2,000 ton compression press. Count the operations eliminated!—cutting, drawing, forming, stamping, polishing, finishing, etc.

Leading appliance, automotive and aircraft manufacturers are among those using General American's big equipment and wide molding experience. Here they get lower production costs . . . one die does the work of a production line! Versatile plastics makes possible new designs, greater strength, lighter weight, beautiful colors and finish. See General American for help and ideas.

PLASTICS DIVISION

GENERAL AMERICAN TRANSPORTATION CORPORATION 135 South La Salle Street, Chicago 90, Illinois

● Facilities unmatched anywhere: injection presses to 300 ounces, compression presses to 2,000 tons, reinforced plastics molding, die making, painting, assembly, packaging

Illuminated color transparencies speed television assembly at Crosley

ILLUMINATED color photographs placed at assembly line positions as a guide to workers can keep up production despite absenteeism.

Frank H. Lukas, head of the photographic department for the Crosley and Bendix Home Appliances Divisions of Avco Mfg. Corp., said the system has been employed on Crosley television production lines.

"We suspended above a position an illuminated box containing a color transparency which illustrated the wiring or soldering job to be done at that particular station," Lukas explained. "Because these operations generally call for female employees, absenteeism runs fairly high. However, under this system a girl experienced in soldering can perform any of the many soldering operations required in television manufacturing.

Crosley has used as many as 60 of these lighted instruction photographs at once on three different television production lines, and the cost was less than $7 per operator's position. The only repeated cost is for the purchase and processing of color film.

Transparencies replaceable

Transparencies can be replaced each time there is a model change. Similarly, new transparencies can be inserted whenever field testing or consumer use reports dictate slight changes in manufacturing operations to improve the product.

This new industrial use of color photography is just one example, he said, of the way "more and more companies are using more and more color for more and more purposes." The Crosley Home Economics Department continually keeps color photographic records in studying food freezing. Photographs are taken of particular foods at intervals of one, two, three and six months of freezing.

Lukas declared that today only a small fraction of the possible uses of color photography in industry have been employed.

Color transparencies in lighted boxes placed above work positions on the Crosley television assembly lines make job instruction easy and permit high production rates even if regular employees are absent. The lighted photographs guide each worker on this soldering operation. Color is necessary because the six to eight wires soldered at each position are color-keyed. The Crosley Division of Avco Manufacturing Corporation has used as many as 60 of these guides on three assembly lines, photographic manager Frank Lukas told the Photographers Association of America at the group's annual convention in Chicago.

Finished water heater tanks ready for jacke

Highlights in production of water heaters

Part II of two-part photo story of selected production line operations at Rheem's South Gate, California, plant

by Gilbert C. Close • WESTERN EDITOR

Exclusive feature finish

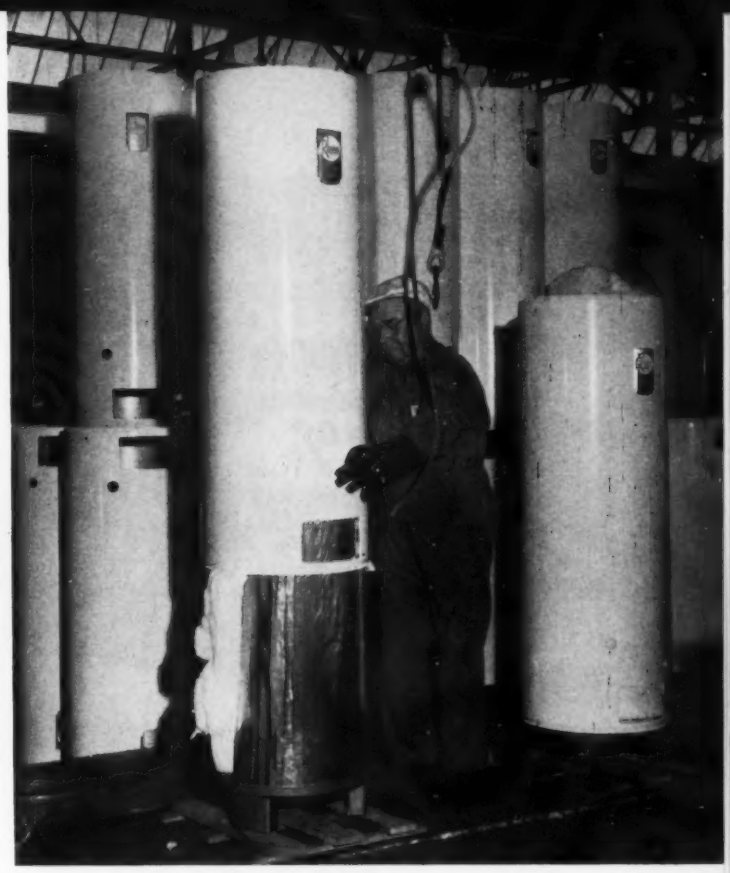
Part I of this two-part photo story of selected production operations at Rheem's South Gate, Calif., plant, covered the fabrication and finishing of galvanized water heater tanks. This concluding part presents a few photo highlights of production operations for the heater jackets, plus assembly.

The author wishes to thank the Rheem Manufacturing Company for helpful cooperation in the preparation of this article, and for the frank revelation of "trade secrets" used in production. This willingness to pass along helpful data has been, and will continue to be, the "blood and guts" of American industrial progress.

Editor's Note:

As a sequel to this story on galvanized water heater production, *finish* will present in an early issue an exclusive article on the production of "glass-lined" water heaters at Rheem Manufacturing Co.

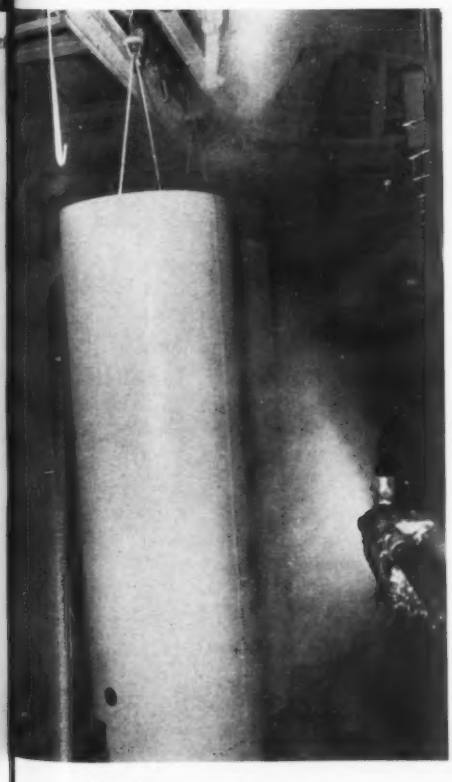
Crimping water heater jacket ends prior to finishing and assembly onto tank. This crimp assures a tight, rattle-free fit between jacket ends and tank body.



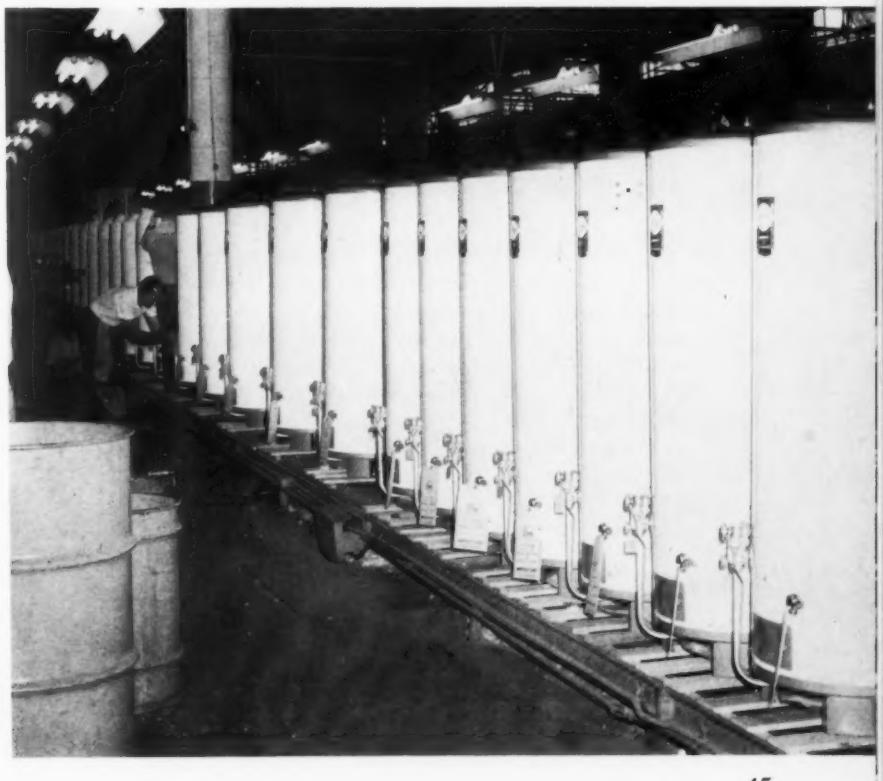
Pre-sized batts of insulation material are carefully arranged on the "clamshells" in a manner to provide complete tank body coverage—an important quality feature in water heater production.

finishfotos

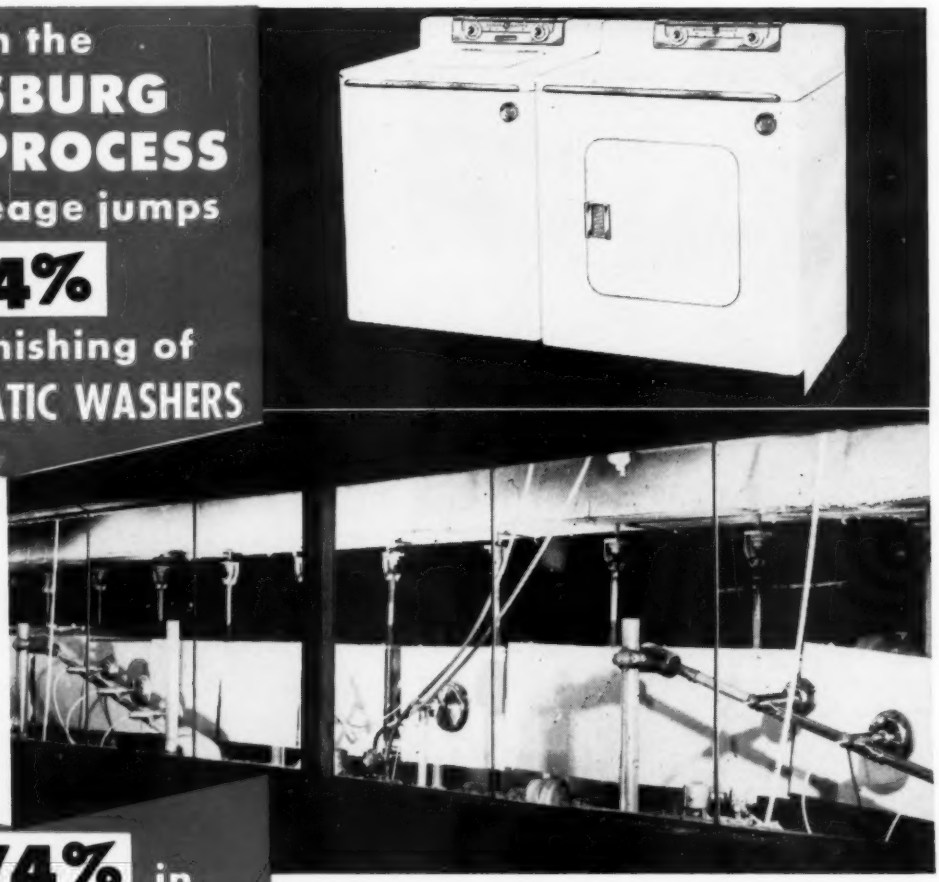
After conveyorized travel through 65-foot long automatic five-chamber cleaner, the water heater jackets enter this electrostatic paint spray booth where the one-coat system of synthetic white enamel is applied.



An extra-long test pit (left background) and final inspection line provides for complete inspection of all heater elements prior to crating operations.



with the
RANSBURG NO. 2 PROCESS
Paint mileage jumps
84%
in the finishing of
G-E AUTOMATIC WASHERS



...and **74%** in
finishing **G-E DRYERS**

Production is increased and quality of the work is improved over former hand spray method

● When General Electric formerly hand sprayed their home laundry equipment—automatic washers and dryers—they painted 9.74 washers with a gallon of paint. Now, in the new and modern plant at Appliance Park, Louisville—where they're using the Ransburg No. 2 Process—they get 17.97 units per gallon of paint. An increase of 84%!

And, where they formerly got 5.49 dryers per mixed gallon of finish, now—with the Ransburg No. 2 Electrostatic Spray Process—they get 9.56 dryers per gallon of paint. An increase of 74%!

Along with increased production, G.E. is getting a more uniform, higher quality finish. Another typical, on-the-job-example of the unmatched efficiencies of the Ransburg No. 2 Process of electrostatic spray painting!

Want to know what Ransburg Electrostatic Processes can do for you in your finishing department? Ask about the complete facilities for test-painting YOUR products—under simulated production conditions—in Ransburg laboratories.

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RANSBURG

National home laundry conference

500 editors, educators, extension workers and home economists from 35 states discuss home laundry problems

W. Homer Reeve, president of the American Home Laundry Manufacturers' Association, Chicago, and Easy Washing Machine Corp., Syracuse, N.Y., welcomed some five hundred educators, extension workers, and home economists to the 8th National Home Laundry Conference, held at Hotel Commodore, New York City, November 4 and 5. Attendance at the Conference indicates increasing interest each year in the discussion subjects covered. This year there were presentations and panels on fabrics, water, soaps and syndets, the teaching of home laundry, what is ahead in home laundering equipment and field service on equipment.

Fabrics get the spot-light

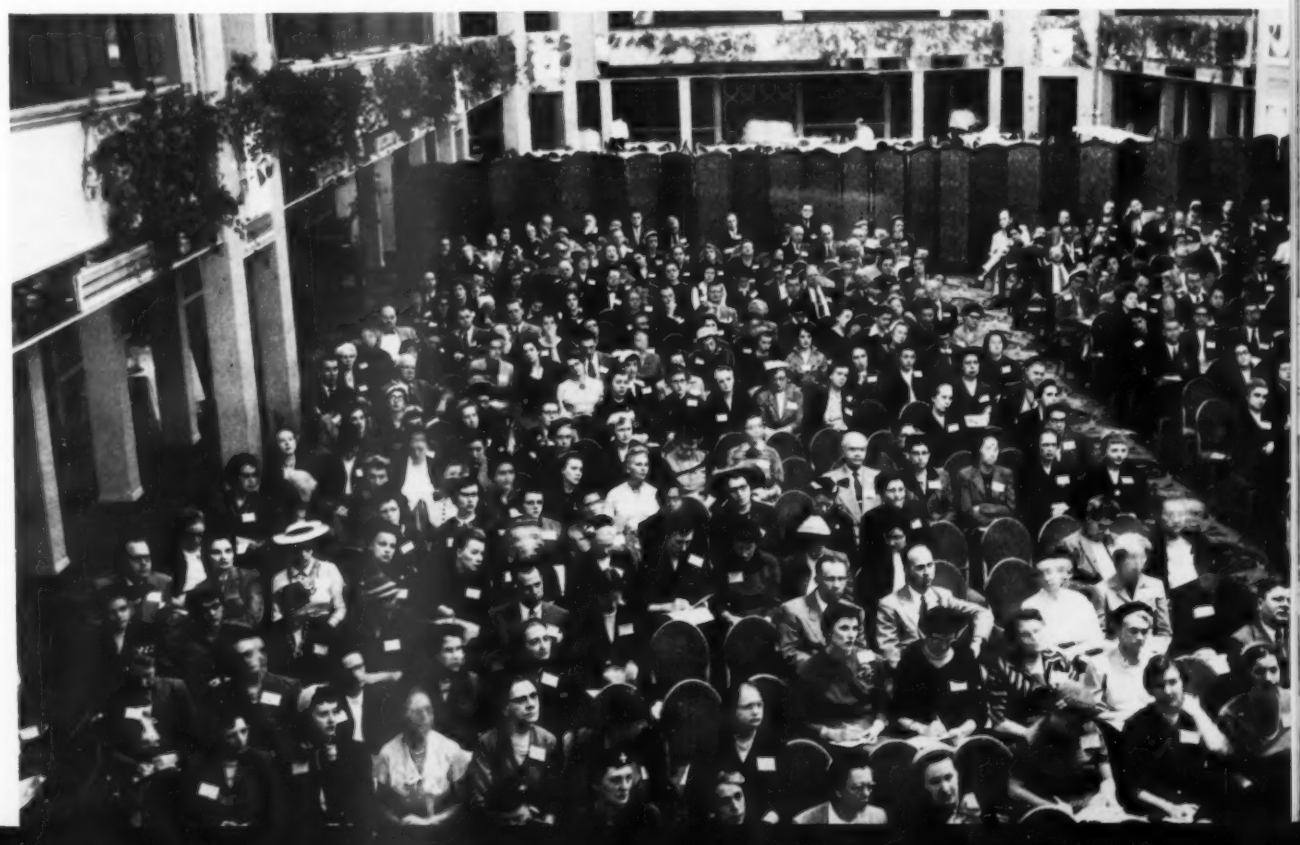
Mrs. Julia Kiene, manager, Home Economics Institute, Westinghouse Electric Corporation, Mansfield, Ohio; Dr. Jules Labarthe, senior fellow, Mellon Institute of Industrial Research, University of Pittsburgh; and David A. Travis, president, Travis Fabrics, Inc., New York City, made up a panel for a discussion of modern fabrics and trends in washable materials.

It was pointed out that, while "appearance sells," "functional performance" is becoming increasingly important. As referred to in this panel, functional performance includes wearability, washability, dryability and ironability. An interesting comment for one segment of the home laundry equipment industry was made by Dr. Jules Labarthe when he said, "The most useful household appliance is the dryer."

Importance of water control

In a panel discussion on the subject of water, Warren D. Calhoun, specialist in water-conditioning problems, Rohm & Haas Co., Philadelphia; referred to the "startling picture" of 4,125,000 diapers laundered every month for the 11,000 infants born every day in the United States. Assuming a minimum of 30 gallons of water for each laundering, "We then see that virtually 5,000,000 gallons of water are used each month in laundering for this single requirement," said Calhoun. Reference was also made to a recent Springfield, Ill., survey denoting the typical average household use of water is 4,000 gallons monthly.

One statement should be of interest both to the manufacturer of equipment and the housewife. In discussing soap and syndets, Calhoun concluded with the statement, "No synthetic detergent has yet been developed which has the remarkable cleansing properties of soap in soft water." In closing, he stated that the only satis-



tactory solution to the domestic water problem is the removal of impurities from the water before they can cause any difficulty.

Calhoun stated that ion-exchange resins have made possible the control of water so that optimum results can be obtained from either soap or detergents. He feels that the consumer should be educated concerning the relationship between properly conditioned water, the water heating system and home laundry effectiveness. "Too often consumer complaints are traceable to nothing more or less than a bad water supply."

W. Homer Reeve, president of AHLMA, with Elizabeth Sweeney Herbert, of McCall's, who reviewed the conference at the closing session.

Soft waters may accentuate corrosion

Frank L. LaQue, vice president and manager of the development and research division, International Nickel Co., New York, stated that heat and "softness", both desirable in household water, may accelerate corrosion of the hot water supply system. He said, "The softest waters are likely to be the most corrosive when galvanized, zinc-coated steel is the metal affected."

He stated further, "Waters hard enough to deposit scale are not especially desirable for laundering. Thus, steps taken to improve conditions in one direction will be at the expense of aggravating the corrosion problem. This requires use of materials in the supply system that are able to resist corrosion without benefit of the protection of scales deposited from hard water."

Almost 3,000,000 water heaters sold in 1953

About three-fifths of America's homes have all-automatic water heaters and annual sales are about 3,000,000 units, Frank A. McFerran, general sales manager, Ruud Manufacturing Co., Pittsburgh, reported. "The manufacturers are searching for a synthetic detergent that will work as well in cold water as in hot, but I believe that the day of its practical success is as far in the future as the washing of clothes by sound waves (see *finish*, December, 1953 — page 63, 64)," McFarren said. He pointed out that 800,000 automatic electric storage water heaters and 2,000,000 gas water heaters were sold for American homes in 1953.

In McFerran's opinion, 100-gallon daily usage is a realistic figure for a home which realizes all the advantages of a household washer, while at the same time enjoying plentiful hot water for bathing, shampooing, dishwashing and other home purposes. In getting down to brass tacks on the cost of hot water, the speaker showed figures to indicate the cost of washing from three washer-loads to six loads per week, for all hot water required, would range from $4.75 to $9.51 annually (depending upon location). He cited the experience of the Rochester Gas & Electric Co. which indicated that complaints from owners of new household washers on improper laundering results were traced to the fact that homemakers were not using water that was sufficiently hot.

Panel on "teaching home laundering": Front row (left to right)—Dorothy Lawson, University of State of New York; and Esther Knowles, University of Wisconsin. Back row—Irene L. Muntz, Rochester Gas & Electric Corp.; Gertrude Monhaut, Purdue University; and Dr. Mary P. Shelton, Pennsylvania State University.

Soaps and syndets

Mrs. Esther McCabe, supervisor of home economics, Colgate-Palmolive Co., Jersey City, N.J., reported on a recent survey in which housewives indicated what they looked upon as the most important factor in getting clothes clean. 50 per cent of those interviewed stated that they ranked first the quality of the synthetic detergent or soap. The amount of clothes washed in each load was placed at the top by 26 per cent and,

to Page 61 →

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With Century Vit Titanium cover coat over Century Vit ground coat enamel you have an unbeatable combination for adding beauty and durability to your appliance or other metal product.

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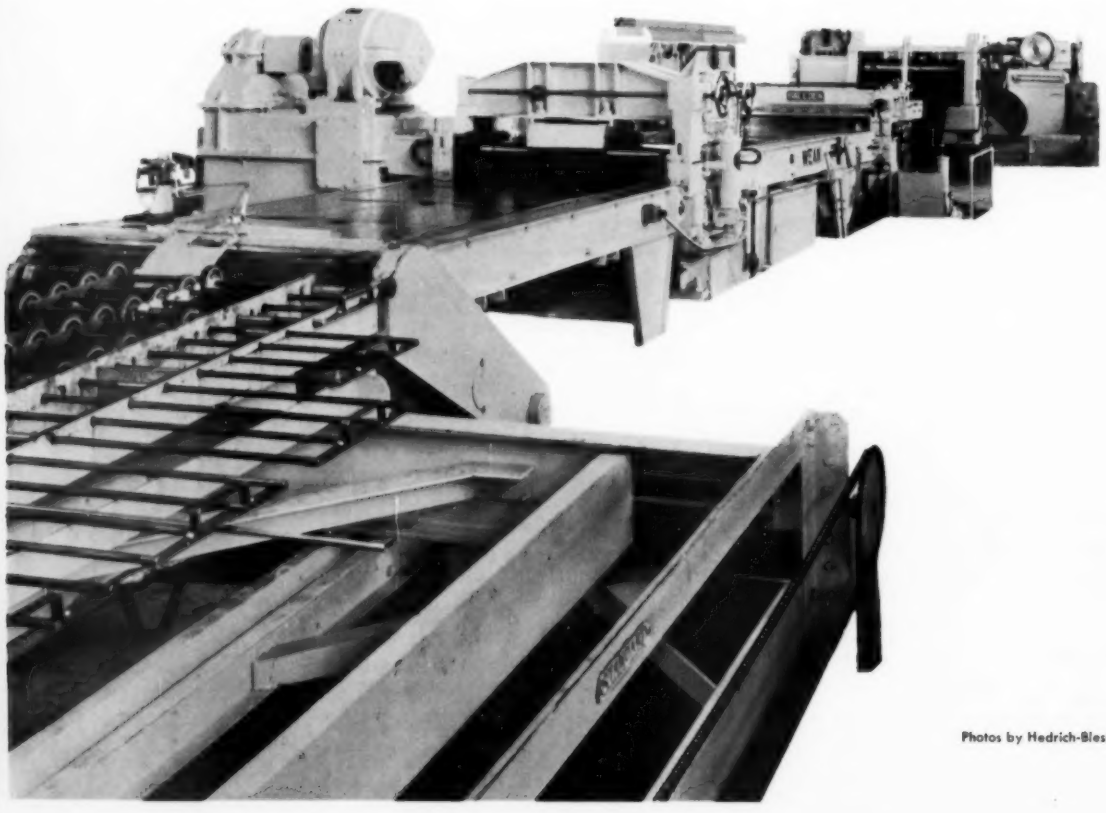
WEAN COMBINATION SLITTING AND SHEARING LINE REDUCES PRODUCTION COSTS FOR LYON METAL PRODUCTS

J. B. O'Connor

"We've noted savings made in raw material inventory; greater flexibility of inventory and improved service in our fabricating departments..."

To combat rising costs and meet increasing competition leading manufacturers in every field are giving modern production machinery a thorough going over.

Such was the case at Lyon Metal Products, Aurora, Illinois and York, Pa., one of the nations leading producers of sheet steel products. Months ago Lyon officials began to position themselves for the competition they knew to be inevitable. They reviewed their entire operation — studied every possible means of increasing production while curbing costs.



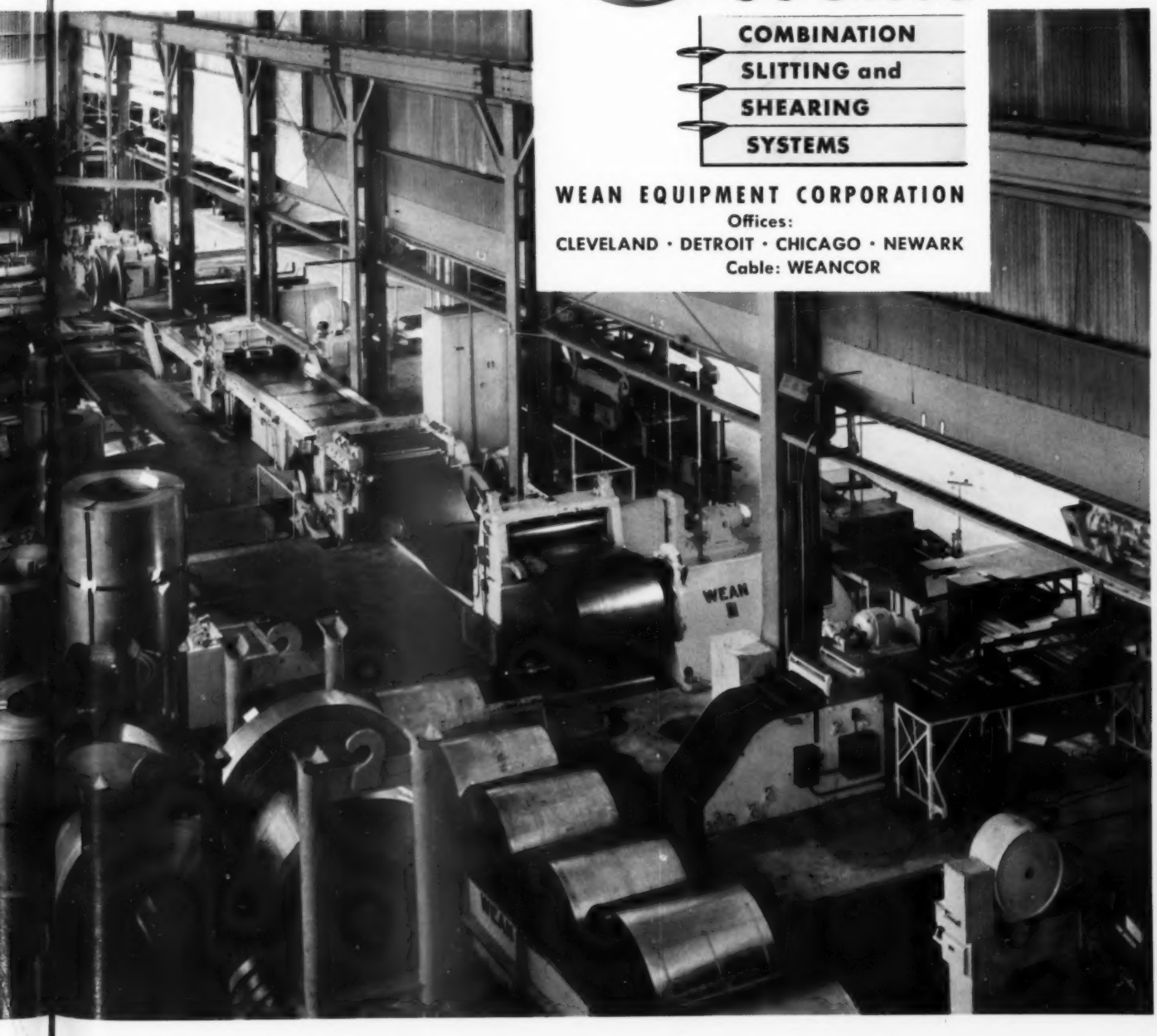
Photos by Hedrich-Blessing, Chicago

That's where Wean Equipment came into the picture. Wean knew their high production Slitting and Shearing Line was a natural for people like Lyon. They showed Lyon the sizable savings possible by buying coil stock directly from the mill, slitting and shearing to width and length desired. Lyon officials checked other Wean lines at work, cutting to resquared tolerances at 100 cuts or 200 feet-per-minute. Wean Equipment engineers pointed out the fact the users of this equipment required less warehousing, less stock control, that users paid less for their steel, had greater flexibility of their entire operation.

Lyon officials listened, compared figures, checked their costs and gave Wean the green light. Recently J. B. O'Connor, an official of Lyon Metal Products checked over the first three months Wean operation. He made the statement:

"We made a sizable saving in floor space, we accomplished a very much worthwhile reduction in our raw material inventory; we have much greater flexibility in that raw material inventory and perhaps more important, we are giving all of our fabricating departments a much improved service. We have every reason to believe that this will amortize itself in relation to expected returns on money invested."

If you're in the business of manufacturing products requiring various widths and lengths of steel, like Lyon, it will pay you to talk with Wean Equipment — once you get the entire story we're sure you'll agree the savings possible, even for smaller users, make the Wean Line one of the best investments in modern metal working equipment.



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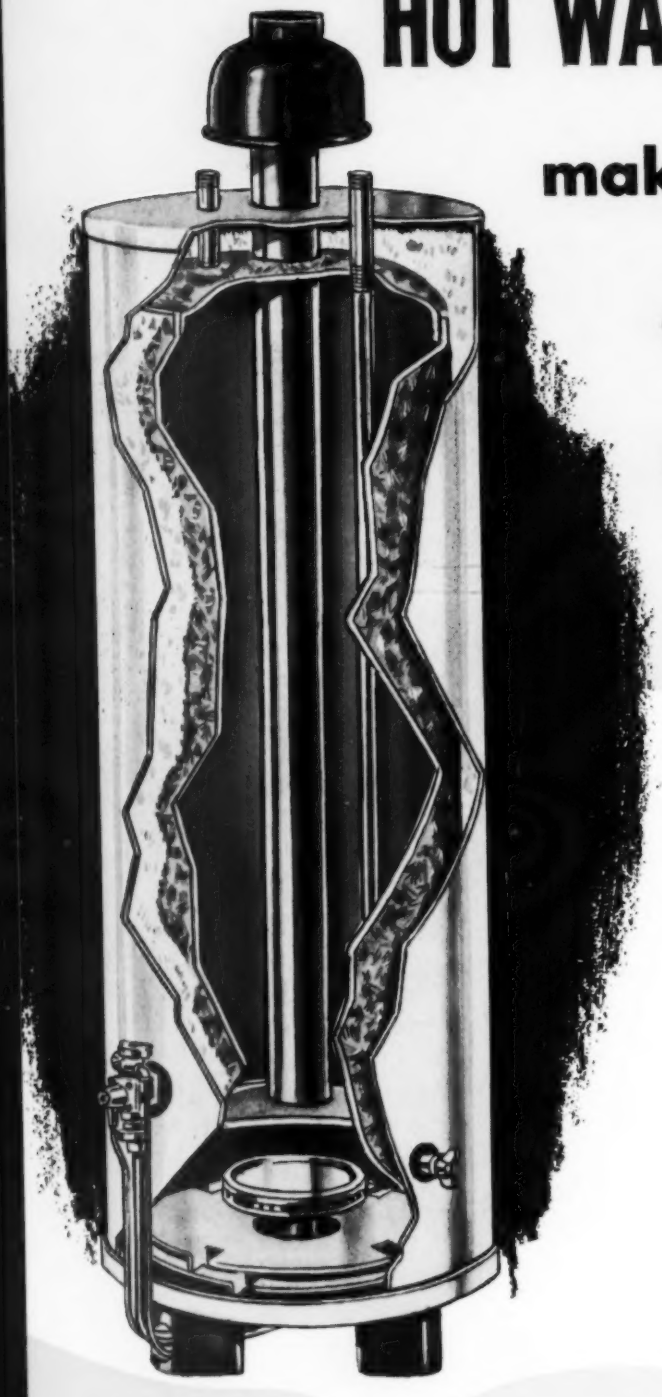
HOT WATER TANK ENAMELS

make your Water Heaters



✻ easier to produce!

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Today Chicago Vit hot water tank enamels make it possible for you to produce tanks for hot water heaters that give the home owner more product value for his money. Through a concentrated research program Chicago Vit has developed special enamels which, due to their outstanding over-all chemical durability, are designed to resist the attack of highly corrosive waters. Chicago Vit hot water tank enamels are easy to handle in production, and even more important, they make your water heaters easier to sell! You would be wise to get all the facts about hot water tank enamels from Chicago Vit engineers. Just call your nearest Chicago Vit representative or contact us direct.

Chicago Vitreous CORPORATION

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NEMA sets five-year sales goal

Metz elected president of National Electrical Manufacturers Association; Packard elected chairman of NEMA maior appliance division

AT the 28th annual meeting of the National Electrical Manufacturers Association, held early in November in Atlantic City, Albert F. Metz, chairman of the board and chief executive officer, The Okonite Company, Passaic, N.J., was elected president. Metz, former treasurer of NEMA, succeeds J. H. Jewell, vice president, Westinghouse Electric Corp., Pittsburgh, Pa.

Five vice presidents were also elected: W. A. Elliott, president, Elliott Company, Jeannette, Pa.; F. F. Loock, president, Allen Bradley Co., Milwaukee, Wis., J. J. Mullen Jr., president, Moloney Electric Co., St. Louis, Mo.; R. C. Neece, president, Landers, Frary & Clark, New Britain, Conn.; and W. V. O'Brien, vice president and general manager, apparatus sales division, General Electric Co., New York, N.Y.

Elected as treasurer was A. A. Berard, president, Ward Leonard Electric Co., Mt. Vernon, N.Y.

Chosen as members-at-large for the NEMA Officers Committee were: J. W. Corey, president, Reliance Electric & Engineering Co., Cleveland, Ohio; and Hoyt P. Steele, president, Benjamin Electric Mfg. Co., Des Plaines, Ill.

ALBERT F. METZ

D. A. Packard, general sales manager, Kelvinator Division, American Motors Corp., Detroit, Mich., was elected chairman of the NEMA Major Appliance Division.

W. M. Timmerman, general manager, household refrigerator department, General Electric Co., Louisville, Ky., was elected vice chairman.

D. A. PACKARD

Appliance section officers

New chairmen and vice chairmen of the NEMA Appliance Sections include the following:

Range Section: Chairman, H. H. Hubbard, vice president, electric range division, Philco Corp., Mt. Clemens, Mich.; vice chairman, D. C. Rainey, manager, special products division, The Tappan Stove Co., Mansfield, Ohio.

Refrigerator Section: Chairman, W. J. Jeffrey, manager, refrigeration and range products, Kelvinator Division, American Motors Corp., Detroit, Mich.; vice chairman, F. C. Margolf, manager, sales planning — refrigeration, Hotpoint Co., Chicago.

Freezer Section: Chairman, Paul B. Thompson, assistant product specialist, refrigeration sales, International Harvester Co., Chicago, Ill.; vice chairman, Herbert Riband, sales manager — freezers, Philco Corp., Philadelphia, Pa.

Water Heater Section: Chairman, A. H. Manwaring, executive vice president, Philadelphia Electrical & Manufacturing Co., Philadelphia, Pa., vice chairman, E. J. McFadden, general manager, water heater division, Combustion Engineering, Inc., Chattanooga, Tenn.

Housewares Section: Chairman, H. S. Perkins, general sales manager, The Silex Co., Hartford, Conn.; vice chairman, R. O. Fickes, general manager, automatic blanket department, General Electric Co., Bridgeport, Conn.

Household Sink Units Section: Chairman, F. C. Hastings, general sales manager, American Kitchens Division, Avco Maufacturing Corp.

to Page 61 →

W. M. TIMMERMAN

LUX

America's only Electric Timers with the exclusive Bell-Chime Signal

THE LUX CLOCK MANUFACTURING COMPANY • WATERBURY 20, CONNECTICUT

Fred C. Schaefer, left, of American Gas Furnace, with Eugene F. Martin, of Carl Byoir & Associates, and Ralph Solomon, of Samuel Stamping & Enameling Co., at a between-sessions break.

T. T. Arden, left, of Robertshaw-Fulton, new GAMA president, with Hazel Hartmann, of radio station WFPG, and Sheldon Coleman, of Coleman Co., retiring GAMA president.

GAMA discusses industry action program

new officers of Gas Appliance Manufacturers Association installed in Atlantic City

THE gas appliance industry must stop competing on the basis of price alone, and compete harder on the basis of quality, service and value.

That's what Sheldon Coleman, outgoing president of the Gas Appliance Manufacturers Association, told a huge audience of utility executives and gas appliance manufacturers at a general session of the American Gas Association at Atlantic City.

Coleman, who is president of The Coleman Company, Wichita, Kansas, pointed with optimism to the progress of the Action Program for Gas Industry Development and to the marked spirit of manufacturer-utility cooperation which manifested itself in all of the Atlantic City meetings of both groups.

These developments, he said, are strong indicators that the industry is united in its thinking and is aiming at stronger salesmanship, sound merchandising, better service . . . and a fair profit.

Although the Gas Appliance Manufacturers Association did not stage its customary biennial exhibition of gas appliances and equipment in the Atlantic City Convention Hall, several important GAMA meetings were held and new officers were installed.

At the board of directors meeting Thomas T. Arden, executive vice president, Robertshaw-Fulton Controls Co., Lynwood, Calif., assumed the GAMA presidency, succeeding Coleman.

W. F. Rockwell Jr., president of Rockwell Mfg. Co., Pittsburgh, became first vice president, and A. B. Cameron, president of Ruud Mfg. Co., Pittsburgh, was installed as second vice president. Lyle C. Harvey, president of Affiliated Gas Equipment, Inc., Cleveland, continues as GAMA's treasurer.

The board decided to change the date of the 1955 GAMA annual meeting. It will be held at the El Mirador Hotel, Palm Springs, California, on October 12-14. The October dates were selected to replace the usual May meeting so that GAMA members might attend both the GAMA meeting and the AGA convention during a single trip to the West Coast. The AGA convention will be held in Los Angeles on October 17-19.

The GAMA board also voted to poll the membership to determine whether or not to resume the exposition of gas appliances and equipment in the Atlantic City Convention Hall in conjunction with the 1956 AGA convention. Until this year manufacturers staged such an exposition whenever the AGA convention was held in Atlantic City. *to Page 61* →

New GAMA Officers

President: T. T. Arden, Executive Vice President, Robertshaw-Fulton Controls Co., Grayson Controls Div.

1st Vice Pres.: W. F. Rockwell, Jr., President, Rockwell Manufacturing Co.

2nd Vice Pres.: A. B. Cameron, President, Ruud Manufacturing Co.

Treasurer: Lyle C. Harvey, President, Affiliated Gas Equipment, Inc.

Secretary: H. Leigh Whitelaw, Managing Director, GAMA.

Shell Oil attracted attention with a "shell game" in which the object was to spot "producing" wells. Occasion was the 36th National Metal Exposition held at the International Amphitheatre, in Chicago, November 1-5.

Display of Verson Allsteel Press inclu trans-mat operation sequence for ro arm for cylinder head of an automob

SNAPSHOTS FROM 1954 NATIONAL METAL EXPOSITION

Test device at Cold Metal booth showed accuracy to which sheets can be rolled.

Detrex demonstrated Vincote for use in easy maintenance of spray booth walls.

Ransburg's disc-type atomizer drew a tion with its "flying disc" appearan

finishfotos

One use for Speed Nut fasteners shown by Tinnerman was for anchoring motors.

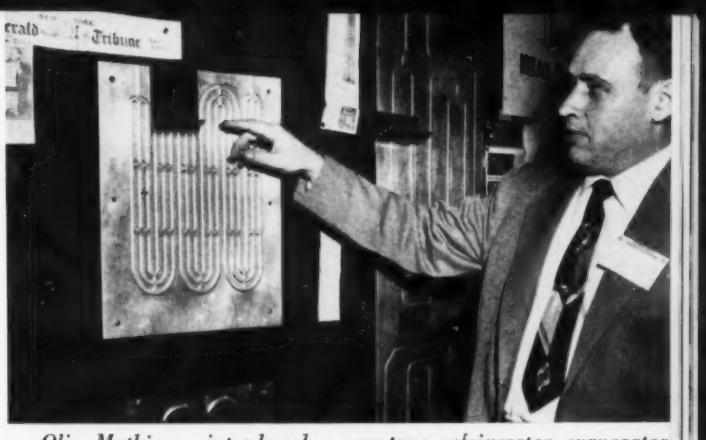
finishfotos

A 10-foot-long I-beam was one of many magnesium products displayed by Dow.

Intl. Nickel featured a new ductile used here as main drive gear for wa

Included in American Nickeloid's display was a Nesco round smoker which has an exterior band made of chrome plated steel.

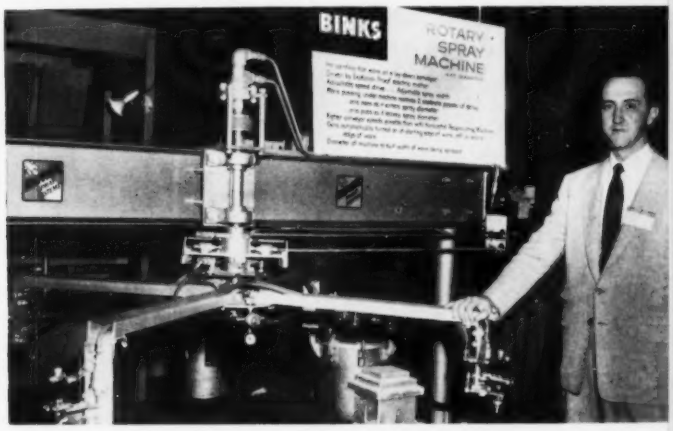
A new Soniclean degreaser, shown by Detrex, employs ultrasonic energy in rinse stage to aid in cleaning metal parts.



Olin Mathieson introduced a new-type refrigerator evaporator plate in which the tubing is an integral part of the plate.

A rotating spray machine driven by an explosion-proof motor was featured in the Binks booth. Unit has adjustable speed drive.

finishfotos



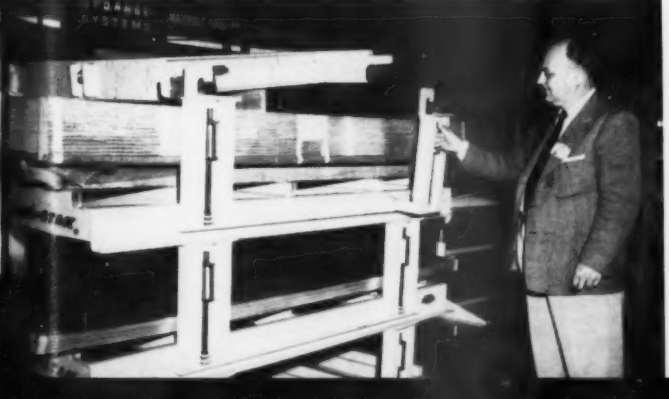
finishfotos

A new skull furnace for casting titanium shapes was exhibited by Naresco Research. Furnace operates at 1800-1900° F.

This sheet storage rack, displayed by Jirke, has vertical side rails which slide into position to support the load.

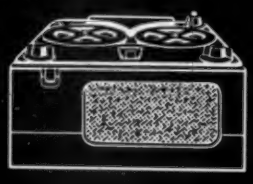
A feature of American Chemical Paint's display was this miniature Alodizing set-up.

A spray gun which functions with atomizing pressure of ¾ lbs per square inch was demonstrated by Scientific Electric.

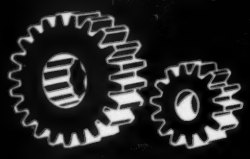


PREVENT Rust with MACCO BLUCOAT

the amazing between-operation rust proofing solution



RECORDER precision parts are being given the Macco Blucoat Rust Preventive treatment by one of the nation's leading electronic manufacturers.



GEARS cut, ground and tempered are treated with Blucoat to prevent rust during storage, shipping and assembly.

CARBURETOR bodies and large engine castings being treated with Macco Blucoat to prevent rust after machining and during storage.

AUTO bodies of one of the world's largest body manufacturers are given the Blucoat treatment to prevent rust before painting.

***MACCO CASE HISTORY**

Blucoat is the almost unbelievably efficient and time-tested rust preventive used by leading metal processors and fabricating manufacturers the country over. They endorse its use as the only practical method of preventing rust between production operations and assembly —and during interplant transportation and storage.

5 REASONS FOR BLUCOAT'S NATIONAL ACCEPTANCE:

1. Blucoat is water soluble, making it economical, yet extremely efficient.
2. Blucoat is adaptable to an almost unlimited variety of applications and conditions.
3. Blucoat's powerful rust inhibitor works equally well on steel, cast iron, forgings or die castings.
4. Blucoat leaves no oily film—adheres better to metal—collects less dust, chips, etc.
5. Blucoat has withstood perfectly a salt spray test of more than 80 hours. Vastly superior to soluble oil, it contains no poisonous elements. No alcohol, making it exceptionally stable.

For the prevention of rust, Blucoat positively has no equal. Whether the product be the finest of automobile bodies or simply bale tie-wires, Blucoat's versatility makes it most indispensable for any metal processing plant.

Write today or call a Macco sales engineer. Phone Prescott 9-0800, Chicago.

*Actual Case History available on request.

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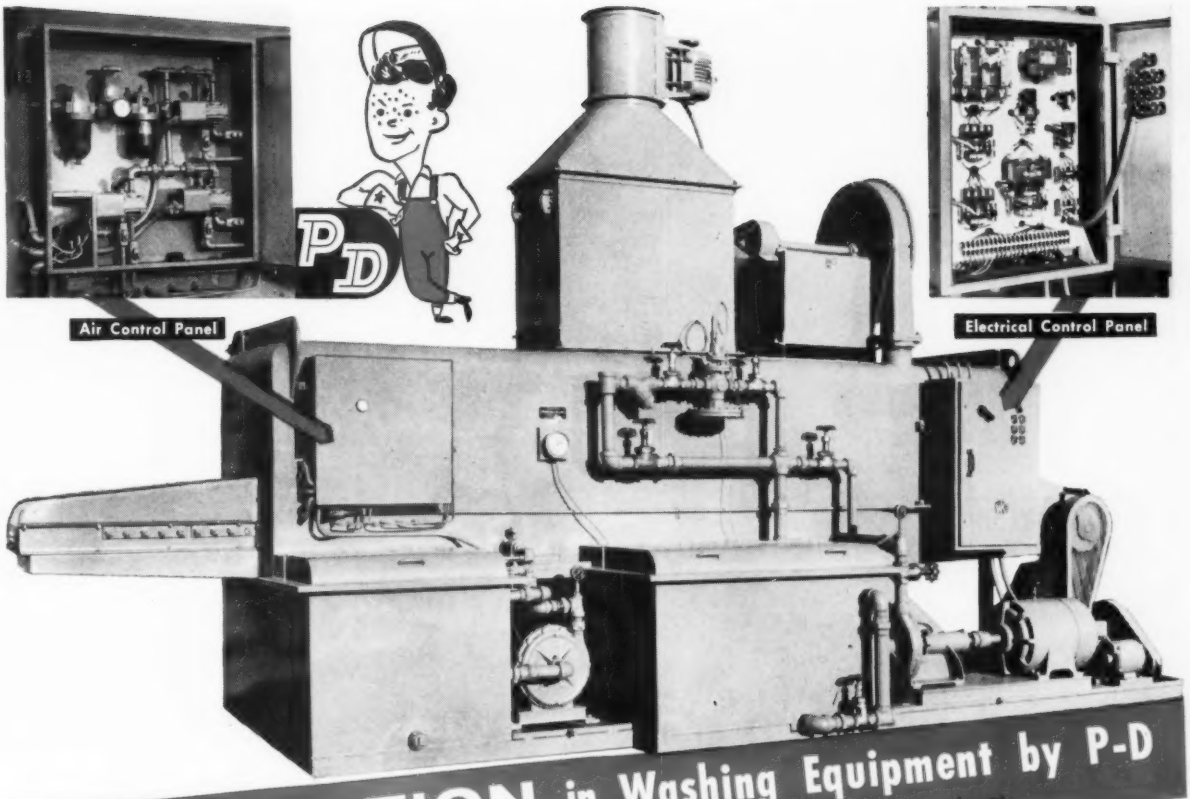
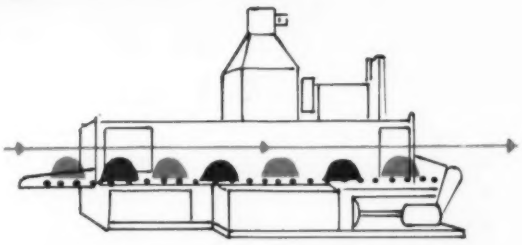


AUTOMATION in Washing Equipment by P-D

(Above photograph is of a 3-Stage Washer for Torque Converter Housings)

Many important production problems are met and solved by this Power Spray Washer—designed, engineered, and built by Peters-Dalton. It meets the full meaning of the newly coined word "automation" by eliminating many processes that were formerly manual or handled through separate facilities.



Extremely efficient, time-saving, and economical in operation is the action of this 3-Stage Washer. It sprays both the inside and outside of converter housings. The operation is done in a continuous action—first, the housings are fed to the machine on gravity rolls—then an air cylinder moves each over the inside spray manifold. This same motion holds back the unit following and moves the preceding unit onto a cross-rod conveyor for outside wash. Another cylinder positions each unit over the manifold and blocks the shaft opening. The inside and outside wash are both heated emulsified oil cleaners—room air blow-off removes excess oil. The exhaust has an eliminator and a filter box for entrapping overspray.

Whatever your problems are for washing products during your manufacturing process, count on Peters-Dalton for the correct solution. Peters-Dalton is an organization of specialists—staffed by men who KNOW the answers. Washers of all sizes, types and required uses can be developed to meet your needs — whether from a single unit or to a complete installation — depend on P-D to give the services and production you have the right to expect. We invite inquiries—Just Write, Wire or Phone.

Ask for our new Power Spray Washer Tech. Bulletin No. 301.

Peters-Dalton INC.
17890 Ryan Road • Detroit 12, Michigan

- *Hydro-Whirl Paint Spray Booths*
- *Industrial Washing Equipment*
- *Drying and Baking Ovens*
- *Hydro-Whirl Dust Collecting Systems*

THE *New* MICRO PRESSURE SUPER IONIC GUN

FOR ELECTROSTATIC SPRAYING

Scientific Electric, pioneer of High Frequency and High Voltage Equipment since 1921 announce their new sensational Micro Pressure "SUPER IONIC GUN".

The "SUPER IONIC GUN" offers microscopic atomization of paint particles, utilizes a recirculating system which keeps constant agitated paint at the head of the gun, extensively increases spray coverage and eliminates the necessity of high velocity exhaust systems which cause significant heating problems.

Many new outstanding applications, which were previously difficult to perform are made possible by the unique advantage of this equipment. Where continuous operation is necessary, this unit may be operated without paint recirculation.

The "SUPER IONIC GUN" is manufactured to sell without RENTALS or ROYALTIES for use with Ionic High Potential Power Supplies Manufactured By SCIENTIFIC ELECTRIC.

Arrange for a free demonstration of the "SUPER IONIC GUN" and see how this new development can solve your finishing problems.

UL — LISTED — RE-EXAMINATION SERVICE — UNDERWRITERS' LABORATORIES, INC.

features

• NO RENTALS • NO ROYALTIES • SPEEDS UP PRODUCTION
• LOW CAPITAL INVESTMENT • MINIMUM PAINT CONSUMPTION • HIGHER PRODUCT QUALITY

INDUCTION AND DIELECTRIC HEATERS - SPOT WELDERS - HIGH VOLTAGE POWER SUPPLIES

HIGH POTENTIAL PAINT — IONIC — SPRAYING EQUIPMENT

Scientific Electric

105-119 MONROE ST., GARFIELD, N. J.

AHLMA home laundry conference

(Continued from Page 48)

of the 3,318 women answering the questionnaire, the proper rinsing by 23 per cent.

Other cleanliness factors recognized by the women interviewed included, in the order of the frequency with which they were listed, temperature of water, duration of washing time, amount of suds, quantity of soap or synthetic detergent used, hardness of water, bleach and bluing.

In referring to controversy over how detergents should be evaluated for cleaning, Mrs. McCabe said, "The chemist considers emulsification, solubilization, true chemical action and other factors supposedly making up the detergency process. The home economist considers the action of the washer, the load, fabrics and their construction, the soil, weight of load, water bath (temperature, hardness, amount) washing time, detergents, foam and many other factors. What does the housewife consider? She is most interested in the end result, the cleanness of her washing. She doesn't think of washing as being made up of a dozen factors, but considers it as a whole."

NEMA sets five-year sales goal

(Continued from Page 53)

Foresee excellent year ahead

Members representing the NEMA Major Appliance Sections foresee 1955 as one of the best years ever enjoyed by the electric appliance industry. Electrical manufacturing is said to be expanding at a rate twice that of industry as a whole.

This expansion, now at the rate of 7.9% a year, is expected to continue, and it is anticipated that the increase in the use of home appliances will probably boost the average householder's use of electric energy from 2,300 to 5,000 kilowatt hours a year in 10 to 15 years.

The fall meeting of the NEMA Appliance Sections, held in conjunction with the NEMA annual meeting, was keynoted by a fast-moving, 60-minute presentation entitled "Joint Action Today—for More Business Tomorrow."

Predict multi-billion dollar sales in next five years

An aggressive approach for a multi-billion dollar growth within the next five years for the electrical industry was outlined at the meeting.

J. M. McKibbin, vice president — consumer products, Westinghouse Electric Corp., Pittsburgh, Pa., stated that "the appliance industry can sell 428,000,000 electric home appliances in the next five years." He asserted that the industry has the capacity to produce that volume, and has the sales ability to put those appliances in the homes of America.

The impact of these appliances on the power industry will mean this, McKibbin added, "We, in the electrical industry, will be well underway to doubling the kilowatt-hour consumption over the next 10-year span, just as has been done in the past 10 years. Looking ahead to 1963, this will mean an average use of 5,000 kilowatt hours per home per year."

Problem of adequate wiring

L. E. Barrett, president Barrett Electrical Supply Co., St. Louis, Mo., emphasized the economic importance of adequate wiring to America's economy, and the role that adequate wiring plays in the full use of electric power in the home.

"The residential market," he pointed out, "is an equipment, wiring and materials market as well as an appliance market. To adequately wire the 25,000,000 homes in America that need it today will call for 2½ billion dollars of electrical materials in the next five years. And if industry builds its goal of 5,000,000 homes in the next five years, the adequate wiring of those homes will give us an additional billion dollar market."

GAMA discusses industry action program

(Continued from Page 55)

Officials of the National Association of Home Builders, speaking as guests at the GAMA board meeting, invited manufacturer representation at the NAHB's National Housing Center in Washington, D. C. Manufacturers may exhibit independently, they said, or participate in a Gas Appliance and Equipment Manufac-

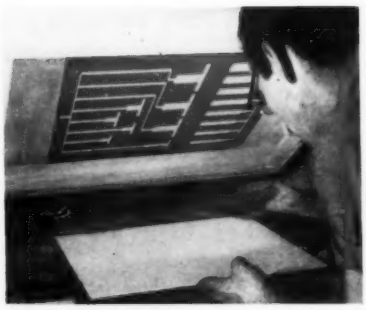
to Page 64 →

GAMA DIVISION AND GROUP CHAIRMEN

DIVISION	CHAIRMAN	COMPANY
Automatic Controls	Frank H. Post	Robertshaw-Fulton Controls Co.
Direct Heating Equipment	R. H. Norris	Dearborn Stove Co.
Unit Heater Group	David R. Webster	Reznor Manufacturing Co.
Domestic Gas Range	E. Carl Sorby	Geo. D. Roper Corp.
Gas Appliance Regulator	Frank Kern, Jr.	Maxitrol Co.
Gas Boiler	N. E. Westphal	Weil-McLain Co.
Gas Clothes Dryer	Norman Millard	Bendix Home Appliances Div. Avco Mfg. Corp.
Gas Conversion Burner	Edward P. Hayes	The C. A. Olsen Mfg. Co.
Gas Engine Compressor	Austin C. Ross	Worthington Corp.
Gas Furnace	G. W. Denges	Williamson Heater Co.
Gas Incinerator	Harry Martens	Calcinator Corp.
Gas Meter & Regulator	G. T. Bowman	Rockwell Manufacturing Co.
Gas Refrigerator	Louis Ruthenburg	Servel, Inc.
Gas Valve	Fred W. Schmidt	Roberts Brass Mfg. Co.
Gas Wall & Floor Furnace	Ralph E. Solomon	Samuel Stamping & Enameling Co.
Gas Water Heater	H. B. Carbon	Bastian-Morley Co., Inc.
Hotel, Restaurant & Commercial Gas Equipment	Wendell M. Smock	Vulcan Hart Mfg. Co.
Industrial Gas Equipment	J. H. Sands	Eclipse Fuel Engineering Co.
Relief Valve	E. F. Kurtz	Spencer Thermostat Div., Metals & Controls Corp.

New Processes for Industry

COMPLEX TUBING PATTERN NOW FORMED IN SOLID SHEET



Above: Tubing pattern is silk screened onto aluminum plate. Coating used for the pattern is a "stop-weld" material.

Left: Following forming operation, the finished evaporator plates are flushed internally to remove all traces of the "stop-weld" material.

A NEW metal-bonding process, of interest to refrigeration and air conditioning manufacturers, was announced recently by Olin Mathieson Chemical Corp.

A new answer to the economical forming of complex tubing, the end product of this process is a homogeneous sheet of metal that has the refrigerant tubing built right into it.

How it works

Olin Mathieson combines silk screening with metal bonding to produce the new sheet. The tubed sheet starts as two sheets of aluminum which are cut to a desired length and cleaned. Next, the tubing pattern is silk screened to one of the sheets. The coating used to form the pattern is a "stop-weld" material; metal on which it is painted won't weld even under extreme heat.

A metal sandwich

The two sheets are placed face-to-face to form a metal sandwich, the edges of which are welded at several points to hold the plates in position during the hot rolling operation which welds the mating surfaces except where the pattern has been applied. Further cold-rolling operations reduce the sheet to its proper thickness and increase its length to several times its original length.

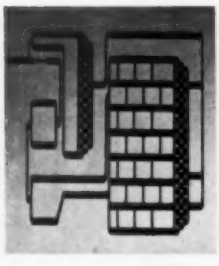
Following annealing, one end of the plate is trimmed, exposing the lead-in end of the pattern. A needle is inserted into the lead-in and the plate is placed between platens of a hydraulic press. Air is blown through the needle at high pressure, spreading the metal apart along the stop-weld pattern. The stop-weld material is flushed out, passageways are dried, and edges are trimmed.

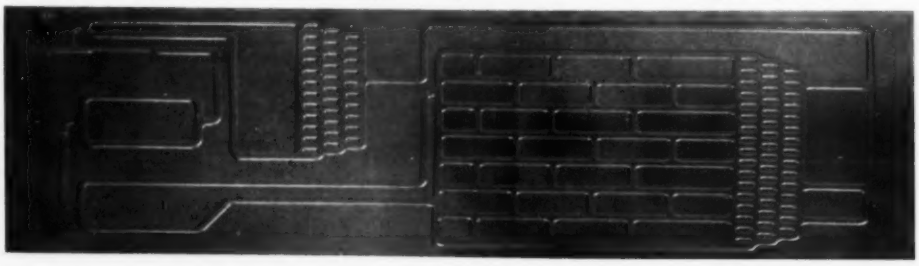
Any tubing pattern is said to be possible. Since as many as six sheets can be bonded simultaneously, parallel crossed or multiple tubes can be made.

See wide variety of uses

Besides its use as evaporator plates for refrigerators, freezers, and air conditioners, Olin Mathieson sees the new sheet being used in ranges and refrigerators for insulation; in automobiles for radiators; in aviation for

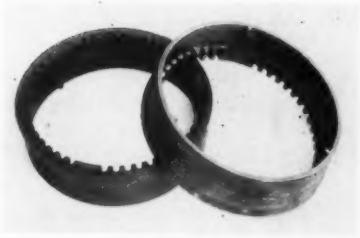
Contrast between pattern plate (left) and completed evaporator plate shows the stretch effect of rolling.





cooling; and in home construction for solar heating.

With experience gained in using the technique for a year and a half, Olin Mathieson is completing a $5,000,000 plant in East Alton, Ill., where the new sheet will be produced in volume. The plant will be in full production by the end of the year.



NEW CASTING METHOD FOR DISPOSAL SHREDDER RINGS

SAVINGS in the cost of producing new shredder rings for a nationally-known garbage disposal unit are said to result from the elimination of machining operations by casting the rings to closer tolerances in shell molds bonded with Bakelite phenolic resins. The actual savings amount to about 67¢ per shredder ring.

In the casting operation, gases from the molten stainless steel escape through the mold's thin porous shell, eliminating surface imperfections and resulting in a high percentage of sound castings. The rings are cast from stainless steel by Cooper Alloy Corp., Hillside, N. J.

SOLUTION CERAMICS ENTER INDUSTRIAL COATINGS FIELD

FLEXIBLE ceramic coatings can now be applied to a wide variety of materials as a result of a process developed at Armour Research Foundation of Illinois Institute of Technology, Chicago.

A great potential use in the industrial field for the radically new coatings, known as "solution ceramics", is foreseen by officials of the Foundation.

The new coatings differ from conventional ceramic coatings in that they are not brittle and can be applied to almost any clean solid surface at a few hundred degrees Fahrenheit.

Called "solution ceramics" because they are applied from chemical solutions, the new coatings do not contain any adhesive or binding agent.

The coatings have a number of unusual features:

Application is easy, requiring neither expensive equipment nor protected heating.

The temperature required by the coating process is far lower than that required for conventional ceramic coatings.

The thickness of coatings can be controlled accurately. While films as thick as .01 inch can be deposited, some coatings only a few millionths of an inch thick have been made.

The coatings are less hard than ordinary ceramic materials, and can be scratched with a knife blade. *This allows sheet metals coated with solution ceramics to be stamped after coating.*

Most solution ceramics are so adherent to the surface of the underlying material that other coatings can be anchored to them.

Solution ceramic coatings are highly resistant to heat, and the more refractory ones can be used to protect a metal, for instance, against molten metal or slag.

Like most ceramic materials, solution ceramic coatings are themselves resistant to chemical attack, even at high temperatures.

Solution ceramics, according to a Foundation official, should be judged on their individual merits and cannot be compared with conventional coatings, such as porcelain enamel.

Some suggested uses for solution ceramics in sheet metal applications include: priming coat for non-adherent lacquers and waxes, parting coating for stacked rolling, insulating layer for magnetic laminates, decorative or protective coatings, rectifier films, base-coat substitute for enamels and glazes, and as reflective and insulative coatings to protect soft or light metals against radiant heat or contact with molten metals, reactive solids, and viscous fluxes or glasses.

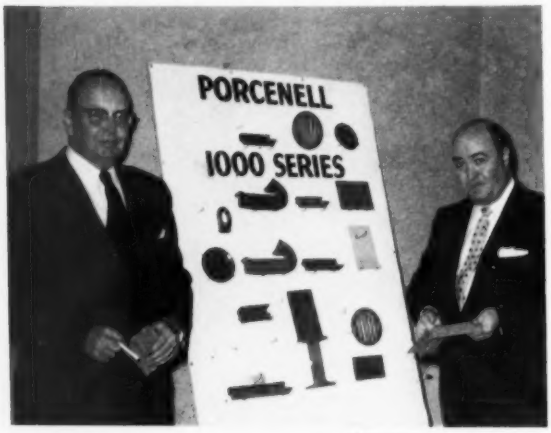
→

Mixing components of "solution ceramics" — new process for heat and chemical resistance coatings — illustrates liquid nature of the coating, permitting application with ordinary spray gun. An official of Armour Research Foundation, where the coating was developed, states that the solution ceramics can be applied to almost any clean solid surface at a few hundred degrees Fahrenheit.

ANNOUNCE "PORCENELL" FAMILY OF INDUSTRIAL COATINGS

A NEW family of industrial finishes for industrial and architectural uses has been announced. Called the Porcenells, the new silicate coatings mature at a temperature between 400° and 1200° F., depending upon which member of the family is used.

The product in process has many of the advantages of organic coatings in that it can be applied at extremely light weights of application over almost any kind of steel, including hot rolled and cold rolled; cast, wrought and malleable iron; and carbon steels — with no burn-off on the knife edges and possessing acid and alkali resistance rated Class A or AA by P.E.I. standards, according to the announcement.



Dr. A. E. Chester (left), of Poor & Co., and William Stoll, of Allied Porcenell, Inc., are shown with a display of Porcenell-finished parts.

It is reported that the thin coating can be punched, cut, drilled, etc., with very little chipback. It can be cut in the field and the raw edges coated by brush and fired by torch to prevent corrosion of base metal.

The Porcenell finishes are also reported to have high scratch hardness and abrasion resistance.

The cost is said to be competitive with hot dip galvanized finishes. Salt spray and corrosion tests indicate, says the announcement, that, on a laboratory basis, this material has protective qualities of ten times that afforded by hot dip galvanized.

Porcenell coatings are a development of Vitreco, Inc., a corporation owned by Poor & Company, Chicago, and The Youngstown Sheet & Tube Co., Youngstown, Ohio. Sales rights are held by Allied Porcenell, Inc., of Phoenix, Arizona, and Waukegan, Illinois.

GAMA discusses industry-wide action program

(Continued from Page 61)

turers Exhibit area being sponsored by the American Gas Association.

At a meeting of the Gas Meter and Regulator Division, meter manufacturers agreed to contribute $3,000 to the American Gas Association for the printing of 10,000 copies of a Gas Meter Educational Kit to be distributed to science teachers throughout the country for use in junior and senior high school courses.

Distinguished service award to Clark

Hale A. Clark, one of the nation's leading authorities on the utilization of gas as an industrial tool, received the distinguished service award of the Gas Appliance Manufacturers Association.

Clark, who is vice president of the Michigan Consolidated Gas Co., Detroit, is credited with the development of some of the techniques which have made possible the use of gas as a fuel, tool or ingredient in more than 26,000 industrial processes.

The award was made by F. C. Schaefer, chairman of GAMA's Industrial Gas Equipment Division.

Clark joined Michigan Consolidated in 1924 to organize a separate department to sell gas fuel to industries. The award citation referred to research and development conducted under Clark's direction in Detroit as having made that city "a center to which industrial fuel engineers all over the country turn for information and assistance in dealing with processes which require precise control."

It also pointed out that Clark's pioneering has made his company one of the largest distributors of industrial gas in the nation.

Clark was one of the founders of the Midwest Industrial Gas Council in the late 1920's. He has served as chairman of the industrial gas section of the American Gas Association, chairman of the Committee on Industrial and Commercial Gas Research and member of the Committee on Marketing Research.

Previous recipients of the award, instituted in 1952, were Frank Adams, president of Surface Combustion Corp., Toledo, and Frederick O. Hess, president of Selas Corp. of America, Philadelphia.

The New Norge

→ *from Page 29*

6. $75,000 market survey used as basis for field organization expansion.

7. Should build 50,000 "built-in" ranges during coming year.

8. Don't believe in branches, will continue distributor set-up.

9. Will continue to build new products, but "*will not* build air conditioners, sinks, dishwashers, garbage disposers, etc."

On the subject of *color*, the Norge answer is that if it develops that the public wants color *in quantity*, color will be produced.

On advertising policy, expenditures will be based on quotas and expected volume and not on past sales — "Advertising requires an investment".

Let us give you the service you want on cold rolled sheets and strip

Delivery end of new cold reduced sheet mill at our Indiana Harbor Works, East Chicago, Indiana.

In these days of reduced inventories and closer buying, you need quick deliveries. In other words, when you order cold rolled sheets or strip, YOU WANT SERVICE.

That suits us. We are set up to give you prompt service from the new mill at our Indiana Harbor Works, East Chicago, Indiana.

Use your telephone to let us know your requirements. Our District Sales Office is geared up to serve you.

QUALITY V YOUNGSTOWN SERVICE

Youngstown

THE YOUNGSTOWN SHEET AND TUBE COMPANY *Manufacturers of Carbon, Alloy and Yoloy Steel*

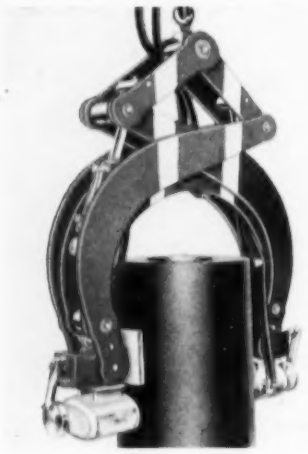
General Offices: Youngstown, Ohio - District Sales Offices in Principal Cities

SHEETS - STRIP - PLATES - STANDARD PIPE - LINE PIPE - OIL COUNTRY TUBULAR GOODS - CONDUIT AND EMT - MECHANICAL TUBING - COLD FINISHED BARS - HOT ROLLED BARS - BAR SHAPES - WIRE - HOT ROLLED RODS - COKE TIN PLATE - ELECTROLYTIC TIN PLATE - RAILROAD TRACK SPIKES

New Supplies and Equipment

L-10. Automatic up-ender positions coils vertically or horizontally

New This automatic upender, capable of lifting 60,000 pounds, can save from 25% to 45% in floor space by stacking coiled stock



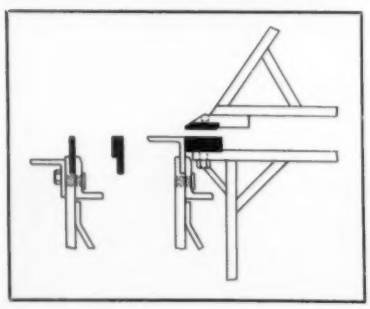
on end, one coil on top of another — as high as safety permits.

When taken to the coil processing line, no extra handling operation is required to position the coil for roller leveling and slitting operations — as the coil can be placed in a horizontal plane while suspended by the automatic upender.

Compressed air is used to accelerate the opening of the jaws. The method of suspension is a friction and pincer action actuated by the gravitational pull of the piece.

L-11. Hard inserts for press brakes

New A change in design of all models of one line of standard hand brakes and universal box and pan brakes has permitted the incorporation of hard inserts for bending leaf bars and also for the top nose bar and bottom bar. Photo shows cross section of bending edges of one model hand brake with the removable hard inserts shown in solid black.

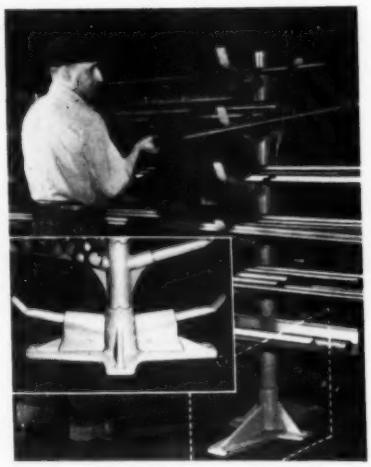


More Information

For more information on new supplies, equipment and literature reviewed here, fill out the order form, or write to us on your company stationery.

L-12. Base brackets up capacity of racks for bar and tube stock

New Up to 25% greater storage capacity is given to sectional stock racks by new base brackets. Slipped over the base



flanges of stock racks and secured by a single bolt through each, the brackets provide additional stock-supporting arms 10" off the floor where they carry the heaviest materials easily and conveniently.

L-13. Adhesive coated copper foil for use in printed circuit work

New Designed for use in printed circuit work, a new adhesive coated copper foil has a heat resistance after cure to solder of 410°F. for 10 seconds.

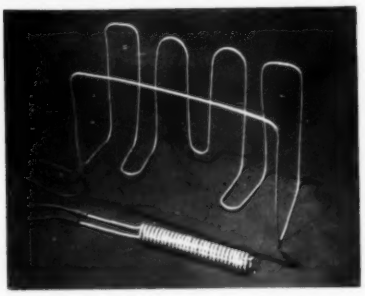
L-14. Pre-masked "metal-cals" for unpainted surfaces

New Thin anodized, etched aluminum nameplates, known as Metal-Cals, are completely masked to allow painting of an article

after trademark or label is applied. The masking is easily stripped off the Metal-Cal after painting.

L-15. Heating units available in continuous lengths up to 25 ft.

New Heating units are now available in continuous lengths up to 25 feet with an outside diameter as small as .230 inches. The



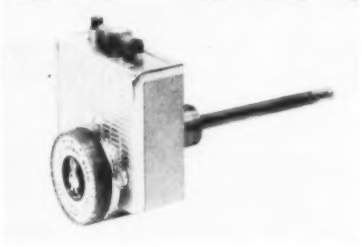
single-piece heater can be formed into intricate shapes—such as a "box" to cover as many as five sides of an *evaporator* or *freezer shelf*—or the heater can be easily formed into a tight coil.

L-16. Chromate protective film does not dull galvanizing

New A new chromate treatment for hot dip galvanized surfaces, identified as Proseal D-36, is said to give good resistance to the formation of white corrosion products without discoloring galvanized surfaces.

L-17. Water heater control is thin enough for easy concealment

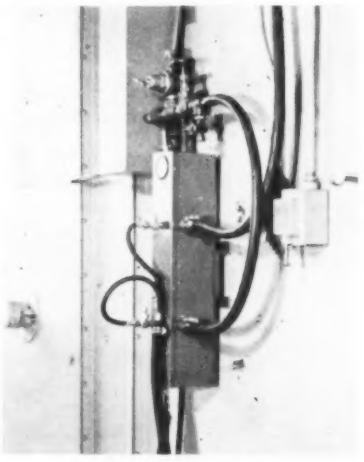
New A new "glamorized" water heater control is designed for mounting outside the water heater shell — yet thin enough for easy



concealment. The control is shaped much like a cigraette case for ease of installation, and, when necessary, for concealment. It is 1-7/16" thick, 4-17/32" high and 4-1/8" wide. The new shape permits a serviceability exceeding that of previous water heater controls.

L-18. Paint heater for hot spray process has only one moving part

New This paint heating system has only one moving part — a pump for circulating hot water. Material to be sprayed is heated in

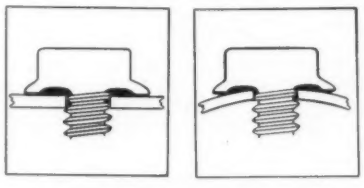


a heat transfer unit located near the spray station. To assure heated material at point of usage, the system has a jacketed hose from the heat exchange to within a few inches of the spray gun. *Photo shows unit installed on exterior of spray booth.*

One water heater will handle several heat exchanges located at different points of usage. Each spray station must have a heat exchanger for each color to be sprayed at that station.

L-19. New fastener absorbs shock, stops leaks and squeaks, and protects porcelain enameled surfaces

New A new fastener with a 1-piece washer-head and assembled neoprene washer — called the Tuff-Tite — provides a cushion



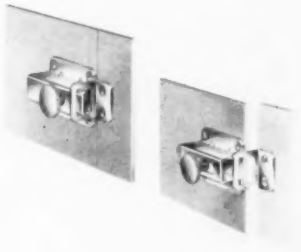
and permits tight seating without damage to porcelain enamel and other fine surfaces. It also absorbs shock, prevents leaks and stops squeaks. The neoprene flows to the outside edge of the washer and into the hole to form a perfect seal on flat, high corrugation and valley applications.

L-20. Cutting tool severs both flat and round strapping

New This new cutting tool has a double set of cutting blades which will handle flat strapping at the mouth of the tool and round strapping in a second set of cutting surfaces near the rear of the cutter head. It will cut strap as heavy as ¾" x .035 or 12-gauge wire.

L-22. Sliding latch provides tight seal for cabinet panels

New Access doors and panels, either hinged or removable, are drawn up tight against frames or gaskets by a turn on the knob of this



new sliding latch. Vibration causes no movement of panels; sealing against dust and water is made convenient through adjustable pawl pressure applied by turning the knob.

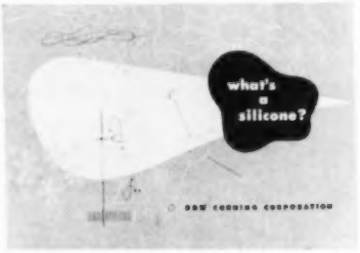
L-21. Series of midget rolls used in steel pickling operation

New Twenty-one midget-size rubber rolls, placed on a common, stationary shaft, form a rotating rubber cushion to support sheet steel as it passes from one pickling tank into another. The new sectional roll is recommended for multiple strand pickling or for submerged use in any pickling operation. Unique roll construction is suited to handle several strands of steel traveling at different speeds across the same roll.

New Industrial Literature

122. "What's a Silicone?"

New This 18-page illustrated booklet describes silicones, and their use as polishes, water repellents, fluids, release agents, lubri-



cants, defoamers, protective coatings, electrical insulation, rubber, etc. The booklet has handy tabs for finding each section.

123. Glass parts applications

New This richly illustrated catalog shows a wide variety of glass parts application in the appliance and other industries. To aid the

design engineer in taking advantage of the special characteristics of glass, 21 case histories are recorded. The catalog also outlines the physical properties which give glass almost unlimited design potential.

Among the items discussed are dials, nameplates, appliance parts, instrument faces and panels, television bulb parts and other electronic components, lenses and reflectors of all sorts.

124. Pre-plated steel samples

New Samples of pre-plated steel are included in a new brochure. Samples included are brass steel (satin), chrome steel (bright), and copper steel (bright). Illustrations show pre-plated steel applied to broilers, electric grills, door chimes, etc.

125. How cold formed metal helps simplify design, cut costs

New This portfolio on "Ideas Shaped in Metal" shows many applications of cold formed metal shapes and tubing for appli-

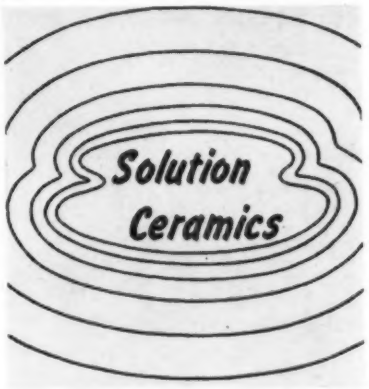
ances, metal furniture, farm equipment, etc. It is pointed out that cold formed parts require little or no machining; parts are shaped, cut, punched or bent to individual specifications.

126. Free sample of adhesive protective paper for protecting enameled surfaces in transit

New A free sample roll of marble protective paper, which helps prevent damage to enameled surfaces during shipment and construction, is available to those requesting it on their company letterhead. The protective paper is easily applied — simply wet the surface to be protected with a sponge and apply the paper. A good soaking is all that is necessary to remove it. It won't come off during shipment, so protection is assured all the way to the destination and during construction.

127. Questions and answers about "solution ceramics"

New This new booklet describes a new tool for industry — "solution ceramics." It describes possible uses in fabricated metal



applications, foundry work, flameproofing, and as protective, reflective and insulative coatings. Questions and answers are given concerning adherence, elasticity, corrosion resistance, thickness, optical, electrical and thermal properties.

128. New technical bulletin on power spray washers

New This two-color, 16-page bulletin groups and discusses in a clear and comprehensive manner all types of power spray washers and their layouts and applications. 15 engineering drawings, incorporating the essential features of a number of

most commonly used types of washers, are included in the profusely illustrated brochure.

129. Color and sound movie on "Metalworking with Wax"

New A new documentary film describes the properties of wax and its functions in the metalworking process. Film runs 25 min.

Shown above is a close-up scene. The metal ship has been cut on a lathe using a special "wax coolant and an ordinary coolant. The portion of the chip cut with the wax coolant is cool enough to be held in the workman's hand, while the darker portion cut with ordinary coolant is so hot it ignites a match touched to it.

The movie is available for showing at meetings of the American Society of Tool Engineers throughout the country.

130. Bulletin on spray booth with water-wash scrubbing chamber

New This illustrated bulletin describes a new "cleanaire" paint booth that is practically 100% efficient in removing paint particles from the exhaust air. The scrubbing chamber features a spray header mounted within two curved baffle plates. When water is pumped into the header it sprays forth in three directions and strikes the plates, building up a violent spray turbulence that removes paint particles.

131. "Enamel Application by Dipping" is subject of new manual

New This booklet, prepared under the sponsorship of the PEI Process Development Committee, is divided into three sections. The first deals with general applications methods — rivet tongs, spring tongs, hand dipping or slushing, and draining. The second main section gives attention to equipment, enamel control, recirculating dip tank, temperature controlled dip tank, and the humidity controlled area. The third section discusses the properties of the materials as they affect the draining properties of an enamel. The booklet, which costs $1.00 a copy, concludes with a 10-page comprehensive appendix on mill additions.

132. Plywood container booklet has 11-page section on case histories

New Containing 24 pages, this booklet on plywood shipping containers takes the reader through the important manufacturing processes — from the forest to the finished product. It contains a section on extensive Safe Transit Laboratory facilities, graphically showing how plywood containers are engineered to give maximum protection to appliances. An 11-page section on typical case histories, documented with "before and after" photos which show how tough shipping problems have been solved.

133. Paints for metalworking plants

New A complete line of metalworking maintenance paints in ten categories, with where and how to use outlines, makes this book

a valuable reference guide for plant superintendents, production managers and maintenance engineers. Many paints are described, including fume-resisting paints, non-yellowing whites, and acid-resistant floor finishes.

134. Hushmush sound deadener

New A four-page folder describes Hushmush, a sound deadening and vibration dampening material for appliances and other metal products. It can be applied by spray or wipe-on methods, and is odorless and fast drying.

FINISH
York Street at Park Avenue
Elmhurst, Illinois

Please forward to me at once information on the new supplies and equipment and new industrial literature as enumerated below:

No.____ **No.**____ **No.**____ **No.**____
No.____ **No.**____ **No.**____ **No.**____

Name ____ **Title** ____

Company ____

Company Address ____

City ____ **Zone**____ **State** ____

FOR FAST, UNIFORM HEAT TRANSFER

It's a striking sight to look into a furnace equipped with a CARBOFRAX® silicon carbide muffle. The entire muffle area radiates heat uniformly with no temperature differential apparent.

It's also interesting to see a fast acting furnace like this shift from one operation to another. Here, for example, they switch from enameling stove parts at 1560 F to TV cones at 1620 F — and the changeover is almost instantaneous.

But what is most significant about this muffle is not that it is silicon carbide — or even that it is *our* silicon carbide — but that our engineers worked with the operator in *applying* these refractories.

Actually, *three different super refractories* are used in this furnace. Each has its place. Each does a particular job. And their *combined* properties make a furnace that gives optimum performance and service.

Frankly, if you use super refractories, we think it makes sense to enlist the experience of the World's largest manufacturer of these highly specialized materials. If you have any problems, we'll be pleased to make recommendations. We invite your inquiries.

The muffle in this furnace has CARBOFRAX® sidewalls, and an ALFRAX® aluminum oxide bottom. The support arches and pierfacing are made of MULLFRAX® electric furnace mullite.

CARBORUNDUM
Registered Trade Mark

Dept. K-124, Refractories Div.
Perth Amboy • New Jersey

This "pocket-size Rockefeller Center" in Denver consists of three buildings: A new 23-story building, a remodeled bank, and a clear-span airplane ticket office.

Denver's "mile high center" sheathed in architectural porcelain

APPROXIMATELY 24,000 square feet of architectural porcelain was processed in the plant of Texlite, Inc., Dallas, Texas, for the new 23-story tower of the "Mile High Center" in downtown Denver, Colorado.

This application of architectural porcelain points to an increasing acceptance of custom-built integrated wall framing and porcelain enameled panels for multi-story curtain wall construction. This method involves the assembly of wall units complete with frame, panels, insulation and windows.

Fiber glass insulation

The concept of curtain wall is a thin insulated wall unit possessing insulating qualities similar to that of heavier, thicker masonry walls. Wall units of the Mile High Center contain fiber glass 1 5/16" thick with an insulating value equivalent to 12 inches of masonry. The curtain wall feature also provides considerably more interior floor space.

Give Thanks for Christmas

There's something in the very air of Christmas Day—an intangible something that works to bring out the best that's in all of us. The joyous shouting of little children becomes a pleasure to hear . . . the spirit of giving, rather than receiving, is renewed . . . good fellowship takes on a new meaning.

It's the season of miracles in the lives of men.

Yes—give thanks *for* Christmas—in the hope that the spirit of that one day will be paramount the world over . . . every day in every coming year.

Richard D. Burke

PEMCO CORPORATION

RASCH TO HEAD NEW TEMCO CENTRAL HEATING DIVISION

Temco, Inc., Nashville, Tenn., has announced the addition of a complete line of central heating equipment to its gas appliances. Air conditioning units ranging from two to five ton capacity will also be introduced for use with the central heating units.

Lee W. Rasch, formerly president, Rasch Mfg. Co., Kansas City, Mo., has been appointed manager of the central heating division.

YOUNGSTOWN KITCHENS PROMOTES KEY SALES PERSONNEL

M. L. Ondo has been named general manager of sales for Youngstown Kitchens, Warren, Ohio, C. D. Alderman, vice president in charge of sales, announced.

M. L. ONDO

Other staff appointments include: J. W. Purvis, sales manager of dealer division; Harry F. Howell, sales manager of builder division; D. F. Sembach, director of marketing; W. H. Powell, manager of sales administration; J. W. Gimbel, advertising manager; Marshall Adams, advertising consultant.

WHIRLPOOL PRODUCTION EXCEEDS 6000 A DAY

Daily production of Whirlpool home laundry appliances for the last three weeks in October was the highest in company history, it was announced by Elisha Gray II, president.

Manufacturing schedules calling for a combined production of 6,000 laundry units daily at the St. Joseph, Mich., and Clyde, Ohio, plants are being exceeded consistently, he stated.

Gray also reported that in September the Clyde plant established a record in producing 4,250,000 square feet of porcelain. The previous plant record was 3,758,000 square feet.

FLOYD-WELLS ADDS NEW PORCELAIN PLANT

A new porcelain enameling plant has been installed by the Floyd-Wells Co., division, John Wood Co., Royersford, Pa.

The new plant will be used to enamel parts for the Bengal gas ranges and to "glass line" water heater tanks, according to W. F. Fisher, general manager.

G. E. EARNINGS UP 20%

General Electric Co. earnings for the first nine months of this year reached a record $140,691,000, an increase of 20% over a similar period last year, Ralph J. Cordiner, president, announced.

WESTINGHOUSE SALES UP 17.7%

Record sales for nine months of 1954 boosted net income of Westinghouse Electric Corp. 17.7% to set a new earnings record for the January-September period, reported Gwilym A. Price, president.

Net sales billed of $1,213,383,000 were 4.3% above the previous record of $1,163,538,000 for the first nine months of 1953.

AVCO UPS EASTMEAD

Lewis D. Eastmead has been named manager of contract and builder sales for Crosley and Bendix Home Appliances Division, Avco Mfg. Corp., announced W. A. MacDonough, general manager of appliance distribution and merchandising.

CRAIG TO HEAD RCA HOME APPLIANCE DIV.

Election of John W. Craig as vice president and general manager of RCA Victor Home Appliance Division, Radio Corp. of America, was announced by Frank M. Folsom, RCA president.

Craig will supervise the activities of the RCA Estate Appliance Corp. and the RCA air conditioning depart-

J. W. CRAIG

ment. He had served since early 1953 as president, chief executive officer and a director of Aluminum Industries, Inc. Previously, he was vice president and general manager of Avco's Crosley Division.

SMALL IS QUIET HEET PRES.

Benjamin Abrams, chairman of the board, Quiet Heet Mfg. Corp., Newark, N. J., has announced the election of John D. Small, formerly vice president and a director, as president.

U. S. STEEL HOMES NAMES MILLER AND ROBERTSON

Appointment of Edward E. Miller as residential sales manager of United States Steel Homes, Inc., U. S. Steel Corp. housing subsidiary, and William S. Robertson as his assistant, has been announced by D. F. Rucks, Jr., sales vice president.

CROSLEY NAMES TAYLOR RICHMOND WORKS MANAGER

J. D. Taylor, Jr., former plant manager, Bendix Home Appliances,

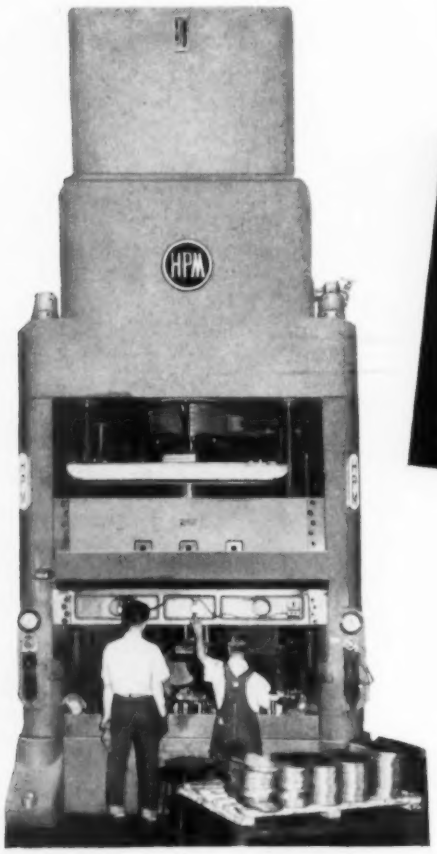
Clyde, Ohio, has been named works manager of the Crosley factory at Richmond, Indiana, announced John Mihalic, Avco Mfg. Corp. general manager of operations for Crosley and Bendix appliances.

NORGE APPOINTS GUILD HOME FREEZER SALES MANAGER

Appointment of E. N. Guild as home freezer sales manager for Norge

Division, Borg-Warner Corp., Chicago, has been announced by R. C. Connell, vice president of sales.

Guild helped develop the first Norge farm and home freezer and also directed establishment of the Norge Research Laboratories in Detroit.



It's Always
NEW MONARCH FOR PRECISION STAMPINGS

LIGHT or HEAVY
LARGE or SMALL
DEEP or SHALLOW
SIMPLE or COMPLEX

The Quality Never Varies

From Blueprint to Shipping Carton

With a battery of presses ranging in size from one-fourth to five hundred tons, New Monarch has the right press, tooling facilities and capacity for almost every kind or size of stamping.

But that's not all! With our three modern and highly efficient plants, we are also equipped—and staffed—to supply you with complete or sub-assemblies, finishing and packing. Whether it be for a single stamping or a complete from-blueprint-to-shipping-carton job, ask New Monarch for an estimate on your work. No obligation.

NEW MONARCH MACHINE & STAMPING COMPANY
406 S. W. NINTH STREET DES MOINES 9, IOWA

MID-YEAR APPLIANCE MEETING IN CINCINNATI

The mid-year meeting of the Institute of Appliance Manufacturers will be held December 6-8 at The Netherland Plaza, Cincinnati, Ohio.

The morning of December 6 will be devoted to meetings of the IAM board of trustees and the Oil Division. The Electric Range, Gas Heating, Gas Range and Solid Fuels Division will hold luncheon meetings.

The afternoon session will consist of a Management Round Table based on the theme of "Producing and Selling for Better Profits."

The general session will be held Tuesday morning, December 7, and will feature an address by James M. Dawson, vice president and economist, National City Bank of Cleveland.

A round table discussion on "Materials, Processes and Components" will be held Tuesday afternoon for purchasing agents, designers, manufacturing men and industry suppliers.

A round-up session on Wednesday morning will conclude the mid-year meeting, and will be of interest to IAM members interested in further conferences and a convention summary.

WORLD PLASTICS FAIR IN LOS ANGELES IN 1955

The World Plastics Fair & Trade Exposition, to be held in Los Angeles, Calif., April 6-10, 1955, is expected to draw an attendance of 18,000 persons, according to Philip M. Kent, managing director of the exposition.

"Advance interest by plastics raw material purchasers in the 11 Western states, with particular reference to the coastal areas, surpasses expectations," stated Kent.

Carl Schaefer, president of the Foreign Trade Association of Southern California, which is in charge of coordinating foreign exhibits, has reported interested reception by most of the major plastics-producing nations of the world. Some of the countries expected to place group plastics industry exhibits are England, France Western Germany, Italy, Switzerland, Japan and Israel.

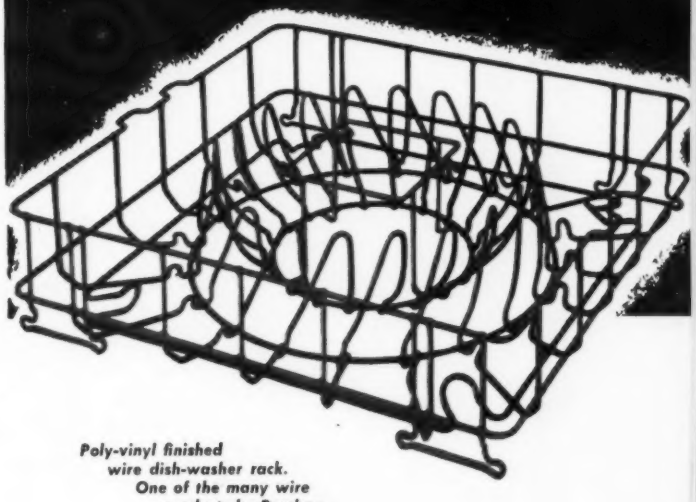
FLORENCE ANNOUNCES NEW TOP BURNER CONTROL

A thermostatically controlled top stove burner, a recent invention being patented by Florence Stove Co., Gardner, Mass., is said to be one of the greatest improvements in gas stoves since the advent of the thermostatic oven control.

This control has been put on an extra burner in the center of the top surface so that the homemaker now has five burners on her new Florence stove. It will control the heat to within ± 5° F. of any selected temperature on any utensil placed on it, regardless of contents; this applies to deep fat frying, pan frying, pressure cooking, and simmering. An aluminum sensing element, located in the center of the burner, measures temperature inside the cooking vessel and thermostatically keeps this temperature constant for the period needed to cook the food.

EVER SEE

A Picture of Know-how...



Poly-vinyl finished wire dish-washer rack. One of the many wire products by Peerless.

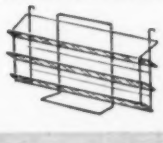
Illustrated above is one of the many reasons why PEERLESS has long been known as one of the quality manufacturers of formed wire products. Intricate forming of low carbon steel, resistance welded at all points of contact, and quality finishing tells the story of craftsmanship. Here is a product of the highest calibre for appliances of quality.

Here, too, is the reason PEERLESS names among its customers many outstanding manufacturers of home appliances. If your requirements are for freezer baskets, refrigerator trays, dish washer racks or any of the hundreds of wire formed products, PEERLESS has the engineering, facilities and years of know-how to transfer your designs from drawing board to finished product . . . from zinc plate to organic and poly-vinyl finishes. And, PEERLESS can do it better, faster, at less cost. *Send us your prints for quotations by return mail.*

Peerless

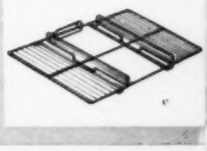
WIRE GOODS COMPANY, IN
2703 FERRY STREET
LAFAYETTE, INDIANA

FROZEN JUICE RACKS



FREEZER BASKETS

REFRIGERATOR TRAYS



PRESSURE CAN NAMES DECATUR

New director of sales for the Pressure Can Corp., Edgerton, Wis., is Harry K. Decatur, a pioneer in the development of automatic gas appliances.

HAAS HEADS SALES PROMOTION FOR MITCHELL MANUFACTURING

Howard G. Haas has been promoted to vice president in charge of advertising and sales promotion for Mitchell Manufacturing Co., Chicago, it was announced by Bernard A. Mitchell, president.

TAPPAN ENTERS BUILT-IN RANGE FIELD

The Tappan Stove Co., Mansfield, Ohio, manufacturer of ranges, has entered the built-in range field on a national basis, it was announced by A. B. Ritzenthaler, vice president in charge of sales.

The new built-in line will be offered in a choice of four oven styles with separate surface units and optional griddles. Designated as the "Tap'n Wall" line of ranges, they have been developed to provide greater convenience, beauty and flexibility in kitchen planning.

BODY TO THERMADOR

William K. Body, formerly with Kelvinator, has been appointed assistant chief engineer in charge of refrigeration and air conditioning, Thermador Electrical Mfg. Co., Los Angeles, Calif.

PROCTOR NAMES RAMBO SALES PROMOTION MGR.

Proctor Electric Co., Philadelphia, manufacturer of electric and non-electric housewares, has appointed William Y. E. Rambo sales promotion manager.

U. OF I. APPOINTS ROESCH

The appointment of Ben Roesch as research assistant in the University of Illinois Department of Ceramic Engineering has been announced. He will be associated with the Air Forces research project, specializing in ceramic bodies.

NAT'L RADIATOR APPOINTS CORBETT PRODUCT ENGINEER

National Radiator Co., Johnstown, Pa., has appointed Thomas J. Corbett product engineer in the heating research section, with responsibility for the development of new steel boiler lines.

WHIRLPOOL ANNOUNCES KEY SALES APPOINTMENTS

John A. Hurley, vice president, has announced the following sales appointments at Whirlpool Corp., St. Joseph, Michigan:

John M. Crouse, director of sales; Jack D. Sparks, sales manager; Harry M. Kane, assistant sales manager, field operations; Robert J. Criddle, assistant sales manager, builder division; Tom Lounsbery, sales promotion manager; Jack Sullivan, washer sales promotion; Ray Muldoon, advertising coordinator; Edward W. Dwan, advertising production manager.

This big-space full-color ad appearing in the November 27th issue of The Saturday Evening Post is one more reason millions look for the Fiberglas label on appliances.

When you use Fiberglas Insulation, you get not only a superior product and superior service, but also the benefit of continuous Fiberglas promotion in newspapers, in magazines and on television. Your salesmen, distributors and dealers get an important *extra* feature that helps make sales. Moreover, our development and testing laboratories are placed at your disposal. How they can help improve products and cut costs through better control of heat, cold and sound is described in our booklet, "Sales Opportunities."

A copy of this booklet is yours for the asking. Just call the nearest Fiberglas office or write: Owens-Corning Fiberglas Corporation, Dept. 109-K, Toledo 1, Ohio.

**Fiberglas is the trade-mark (Reg. U.S. Pat. Off.) of Owens-Corning Fiberglas Corporation for products made of or with fibers of glass.*

BIG CHRISTMAS SEEN FOR MAJOR APPLIANCES

"This year for the first time we will be able to say that major household appliances have become best sellers as Christmas gifts," David F. Austin, executive vice president of United States Steel, has predicted.

"Reports coming in from all over the country indicate," he said, "that U.S. Steel's *Operation Snowflake* designed to bring this about is rapidly assuming proportions of a blizzard."

Using the slogan "Make it a White Christmas—give her a major appliance," with a snowflake as the symbol, literally thousands of national and local promotion campaigns are being conducted.

Operation Snowflake has been endorsed by all the major gas, electric and appliance associations. At least 90% of the appliance producers served by U.S. Steel are throwing merchandising and advertising weight behind it, stated Austin.

THOR TIES IN WITH "OPERATION SNOWFLAKE"

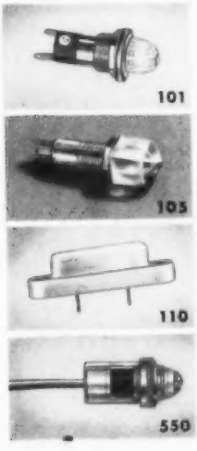
Thor Corp., Chicago, has announced a tie-in holiday promotion with U.S. Steel's "Operation Snowflake". Thor's "Make it a White Christmas" promotion will feature the presentation of 10 gift Christmas cards to homemakers who watch a demonstration of their new automatic washer.

Modern Maid ranges — *made by Tennessee Stove Works, Chattanooga — are an example of major appliances being displayed in dealer showrooms this fall in attractive Christmas packages. Tennessee Stove's display consists of a clear cellophane wrapper, complete with red bow and ribbon. The company's current sales theme is "Make it a White Christmas — give her a Modern Maid range."*

More Efficiency — More Sales Appeal — With DRAKE Assemblies

DRAKE Socket and Jewel Light Assemblies will serve you better . . and often at lower cost. Expert design, patented features, top performance have made DRAKE units the choice of leading manufacturers in many fields.

LET DRAKE QUOTE ON YOUR NEEDS!



ALL KINDS OF STYLES, SIZES, COMBINATIONS..

. . are already available in the DRAKE line. It's usually easy to select from them the exact unit to fit your requirement best. But should your application need a special design, DRAKE can develop a unit. especially for you . . just as we have done countless times for our customers during more than 20 years of specialization.

★

SEND FOR COMPLETE CATALOG F

DRAKE MANUFACTURING COMPANY
1711 WEST HUBBARD ST. • CHICAGO 22, ILL.
SOCKET & JEWEL LIGHT ASSEMBLIES

JACOBS BUYS MILLS INDUSTRIES

Mills Industries, Inc., Chicago, vending machine manufacturer, has been purchased by F. L. Jacobs Co., Detroit automotive parts maker. It will be operated as a subsidiary.

MCGRAW ELECTRIC TO PURCHASE LONERGAN MFG.

McGraw Electric Co., Elgin, Ill., completed negotiations to acquire Lonergan Mfg. Co., Albion, Mich., manufacturers of air conditioning equipment, space heaters and dehumidifiers. The purchase is subject to approval of Lonergan stockholders.

LAWSON HEADS APPLIANCE DIV. OF AMERICAN MOTORS

George Romney, president, American Motors Corp., Detroit, has announced the appointment of Charles T. Lawson as executive vice president in charge of the appliance division, which includes the Kelvinator Division, Grand Rapids, Mich.; a wholly-owned laundry equipment subsidiary, Altorfer Brothers Co., Peoria, Ill.; and appliance research engineering, Detroit, headed by Dr. L. A. Philipp, vice president.

B. A. Chapman has been named vice president and general manager of the Kelvinator Division.

JOHNSON TO HARDWICK STOVE

Hardwick Stove Co., Inc., Cleveland, Tenn., has named William F. Johnson, sales promotion manager. He was formerly with Harper-Wyman Co.

TYLER ANNOUNCES KEY EXECUTIVE PROMOTIONS

The promotions of Robert L. Tyler Jr., to the new post of assistant to the president, S. D. VanderWeg to director of operations, and E. J. Mittan to assistant director of operations, have been announced by Robert L. Tyler, president, Tyler Refrigeration Corp., Niles, Michigan.

Recently general manager of Tyler's plant in Cobleskill, N.Y., VanderWeg will move his offices to Niles. He will assume responsibility for corporate-wide production activities covering Tyler plants in Niles, Mich.; Cobleskill, N.Y.; Waxahachie, Texas; and Smyrna, Delaware.

SWEO, MATEJCZYK SPEAK AT MIDWEST ENAMELERS MEETING

Ben J. Sweo, left, of Ferro Corp., and John Matejczyk, of The O. Hommel Co., were guest speakers at the Midwest Enamelers Club meeting in Chicago, November 6. Sweo discussed "Gas Effects Associated with Enamel", and Matejczyk presented some "Observations on Use of Color in Porcelain Enamel."

BECVAR, OF G-E, NAMED TO "GOOD DESIGN" COMMITTEE

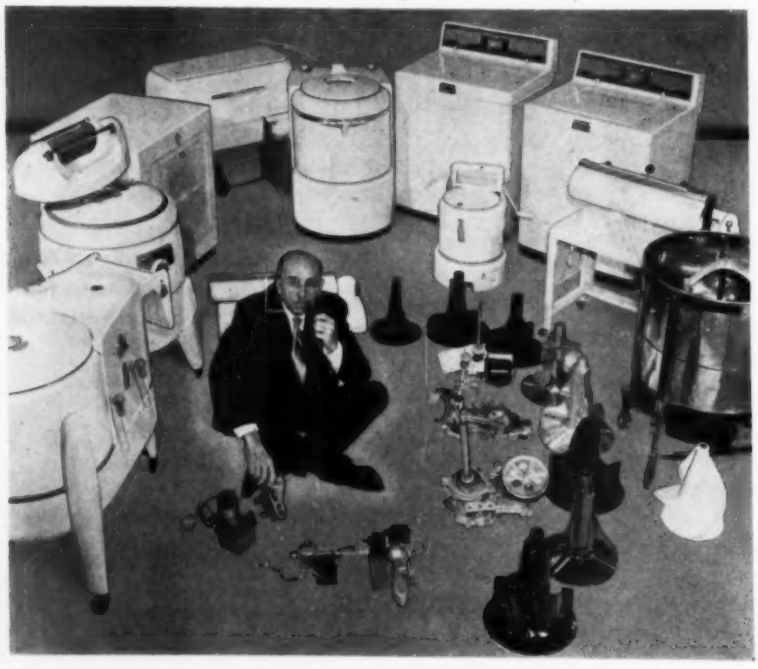
Arthur N. BecVar, manager of appearance design, major appliance division, General Electric Co., Louisville, Ky., has been named a member of the Selection Committee for the "Good Design" exhibition which will open January 4 in The Merchandise Mart, Chicago, during the International Homefurnishings Market.

WESTINGHOUSE FORMS NEW PRODUCTS ENGINEERING DEPT.

A. C. Monteith, vice president of engineering, Westinghouse Electric Corp., Pittsburgh, Pa., has announced the formation of a new products engineering department to be headed by Dr. W. H. Brandt.

Work of the new department will be closely coordinated with that of the Westinghouse research laboratories and the materials engineering department.

Surrounded by achievements — *P. Eduard Geldhof, retiring vice president of engineering, Whirlpool Corp., St. Joseph, Mich., sits among some of his designs. At left is pre-war Whirlpool spinner. First functional dryer is back of wringer washer. Copper-tub washer and the spiral washer next to it were developed by him before he joined Whirlpool in 1936. Agitator series shows developments over the years.*



NEW EXPOSITION — PRODUCTION ENGINEERING

A new industrial exposition—the Production Engineering Show— will be launched in Chicago, September 6-17, 1955, to coincide with the holding of the Machine Tool Show, it was announced by Clapp & Poliak, Inc., exposition management firm.

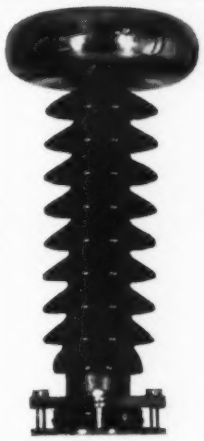
The combined events are expected to attract 200,000 industrial executives from all over the world to make the largest industrial gathering in the nation's history, according to the Chicago Convention Bureau.

The Production Engineering Show will be held at the Navy Pier and the Machine Tool Show at the International Amphitheatre. A fleet of busses will shuttle visitors between the two halls.

The new industrial show, which will cover the new field of automation, is an independent venture of Clapp & Poliak, and will be held annually.

More than 70 companies agreed to conduct exhibits prior to the public announcement of the show. It will cover 200,000 sq. ft. of display space, and the number of exhibitors is expected to reach at least 225. Automatic mechanisms and techniques for manufacturing and processing industries will be demonstrated.

The announcement stated that manufacturers of accessory equipment for machine tools will, for the first time, have an independent exposition at which to exhibit. Heretofore they have been restricted to fringe areas of the Machine Tool Show. The latter show will permit only machine tools themselves to be displayed.



Now!

ELECTROSTATIC FINISHING

is within the reach of limited volume plants who heretofore have considered it too costly.

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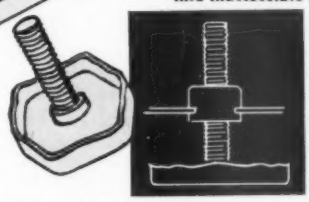
Suite 600 — 145 N. Clark St. — Chicago, Ill.

FOR LOWER COST "FIXED" FASTENINGS IN BLIND ASSEMBLIES

GRIPCO "CLINCH" NUTS

Inner View. GRIPCO "Clinch" Nut ready to insert into hexagonal hole in metal. Shows "pilot" and hex hole before clinching.

This is how leading appliance manufacturers get lower cost fasteners into inaccessible places.



←Cross-Section view after pilot has been clinched and bolt inserted. Can be locked at any point. (Non-locking nut can be supplied if preferred.)

For "hard to reach" places a Gripco "Clinch" nut holds tighter, wears longer, reduces mechanical failure for greater customer satisfaction. Provides added threading depth for applying bolts to thin metals. Holds product rigid in its container during shipment and holds the adjustable "levelers" tight for product installation and use. Used by leading appliance manufacturers.

GRIP NUT COMPANY

"After 50 years—still holding strong"

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LAU BLOWER BUYS MIMMS

Lau Blower Co., Dayton, has purchased the E. N. Mimms Co., Louisville, it was announcedl by E. B. Lau, president, who said that his firm purchased Mimms because of its desire to enter the floor circulator and pedestal fan business.

VINET TO WOOD MFG. AS SALES DIRECTOR

Pierre Vinet, formerly with Geo. D. Roper Corp., has been appointed sales director of A. R. Wood Mfg. Co., Luverne, Minn. He will also direct sales of two subsidiaries, Norwood Products Co. and Northco Ventilating Equipment Co.

SMITH RESIGNS; HENTZ HEADS MARKETING FOR RCA ESTATE

Paul A. Barkmeier, president, RCA Estate Appliance Corp., Hamilton, Ohio, has announced the appointment of Gordon Hentz as manager of marketing, succeeding Inwood Smith who resigned. Hentz has served in various executive sales positions since joining the company seven years ago.

DUNN HEADS MAGIC CHEF

Cecil M. Dunn has been appointed president of Magic Chef, Inc., an-

nounced S. A. Stockstrom, chairman.

Dunn has had 27 years in the stove industry. Most recently he was president of the RCA-Estate Appliance Corp., division of the Radio Corp. of America.

James A. Marohn has been named financial vice president and treasurer.

AMANA'S JOHN NOE DIES

John A. Noe, former general purchasing agent and assistant secretary of Amana Refrigeration, Inc., Amana, Iowa, died recently after a brief illness.

An amateur artist, Noe won awards in numerous exhibits throughout the country. A prominent member of the Amana Society, he was associated with Amana for 19 years.

FRIGIDAIRE UPS GOULD VAN SCOYCK, SCHWELLER

R. E. Gould has been named assistant chief engineer in charge of the research and future products division of Frigidaire, according to Mason M. Roberts, Frigidaire general manager and General Motors vice president. Gould has been assistant manager of direct factory sales since 1953.

Other organizational changes an-

SPRINGS and STAMPINGS
STUD CLIPS
SCREW FASTENERS
MOULDING CLIPS
THREADED FORMS

SPECIAL COLD HEADINGS
In all Metals!

The CUYAHOGA SPRING Co.
SUBSIDIARY OF THE BARIUM STEEL CORP
10234 BEREA ROAD • CLEVELAND 2, OHIO

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A Gear Motor for
SMALL APPLICATIONS

Our line of small induction motors is designed for applications where small power can be converted to considerable torque at slow output shaft speed. Hundreds of thousands are in use today for operating relays, vending, amusement, coin operated machines, motion displays, combination rotisserie and broilers, etc.

These motors are made in three basic sizes—speeds from 1 to 200 r.p.m. with proportional torque from 5 to 500 in. ounces. Write today for descriptive information, prices and data sheet.

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RACINE, WISCONSIN

Designers and Manufacturers of
SPECIAL INDUCTION MOTORS

★

nounced were: H. E. Van Scoyck, assistant chief engineer, commercial and air conditioning engineering divisions, and E. F. Schweller, assistant chief engineer, household engineering division.

MIHALIC NAMED CROSLEY, BENDIX OPERATIONS MANAGER

John Mihalic, general manager of Crosley's Richmond, Ind., plant, has

been named general operations manager of Crosley and Bendix kitchen and laundry appliances, Parker H. Ericksen, vice president of Avco Mfg. Corp. and executive vice president of the two divisions, announced.

In this newly created position Mihalic will be responsible for manufacturing, production, engineering, and other related activities.

Cabinet production . . .

→ *from Page 24*

and the various components are stored along the lines where they will be assembled to the cabinet body. The main assembly is performed on a waist-high, slat-type conveyor.

First step in assembly is attaching a wooden shipping pallet to the cabinet base. Then the shelving, doors, front and end panels are added to the cabinet body, followed by attachment of hardware and name plates. The completely assembled units pass over a roller conveyor feeding a continuous belt conveyor leading to the packaging department.

ANOTHER *Ashdee*
ELECTROSTATIC PAINTING SYSTEM

Installed At
LYON METAL PRODUCTS*
Aurora, Illinois

*They like its **"Very satisfactory operation"** and the **"Substantial savings in raw material cost."**

This Ashdee System at Lyon Metal Products automatically prime and finish coats kitchen cabinet panels—in varied sizes. Results are excellent. A top quality finish is achieved, with substantially lower paint costs. Here is another typical example of the savings Ashdee equipment has given to so many Nationally known plants. In most installations results have exceeded expectations—not one failure has been reported!

There are good reasons: Improvements introduced by Ashdee include up to 100% automatic operation, 100% adaptability to any metal ware, from freezer cabinets to candlesticks—at fastest practical speeds—with utmost economies of intermittent-spraying, skip spraying, with "instant" model-to-model or parts changes!

If you have a metal finishing problem we will help *you* lower *your* costs, too!

Ashdee **ENGINEERING SERVICE**

Analyzes Your Finishing Problem—Compiles Evidence of Savings—Designs a System Adapted to Your Operation

With your permission, your product is test-run in the Ashdee Electrostatic laboratories . . . in your presence, if you wish . . . with no obligation, of course. You will see a consistent, fine quality finish — at a higher production rate — and at startling, potential savings. Then you can determine within how many months, or even weeks, your own Ashdee Electrostatic System will pay for itself.

Write today. You'll be glad you did.

Ashdee **ELECTROSTATIC PAINTING SYSTEMS**

ASHDEE ELECTROSTATIC PRODUCTS, INC.

DIXIE HIGHWAY, HOMEWOOD, ILL. TEL.: HOMEWOOD 1814; (CHICAGO) WAterfall 8-1561

NEWS ABOUT SUPPLIERS

SORENG JOINS NEMA SECTION

Soreng Products Corp., Schiller Park, Ill., is now affiliated with the Motor and Generator Section and the Fractional Horsepower Sub-Section of the National Electrical Manufacturers Association.

P. R. MALLORY BUYS SEMROW PLASTICS

Sale of Semrow Plastics, Inc., Chicago, to P. R. Mallory Co., Indianapolis, Ind., electronic equipment manufacturer, has been announced by Harry H. Semrow, vice president and treasurer.

Semrow Plastics manufactures plastic bathroom fixtures. It will be operated as a subsidiary. The sale does not involve Semrow Products Co., of which Semrow is president.

FRENCH GROUP LICENSED FOR GENERAL AMERICAN'S KANIGEN PLATING PROCESS

William J. Stebler, president, General American Transportation Corp., Chicago, has announced that his company has signed a contract, with a half-million dollar right payments, with the Societe Europenne de Revetement Chimique (S.A.) licensing that company exclusively to use and sub-license General American's Kanigen plating process in several countries and territories abroad.

APPLIANCE MFG. NAMES BACHI

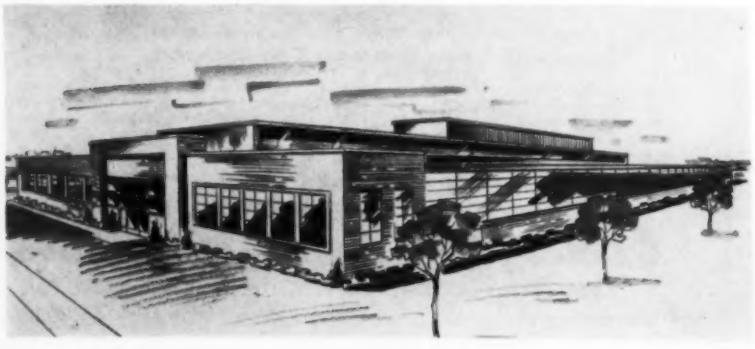
Announcement was made to *finish* by P. H. Korrell, executive vice president, Appliance Mfg. Co., Inc., Van Buren, Ind., that Robert W. Bachi has been appointed director of engineering. A graduate of Purdue University, Bachi was formerly associated with Soreng Products Corp. According to the announcement, the new engineering director has had wide experience in the development of electrical specialty items for use on appliances.

DICE NAMED G-E MARKETING MGR. OF SPECIALTY CONTROLS

Donald O. Dice has been named manager - marketing, specialty control department, General Electric Co., Schenectady, N. Y., announced Dr. Louis T. Rader, department general manager.

Dice replaces J. Penn Rutherfoord who has taken a post as consultant, manager development, General Electric's management consultation services division, New York City.

Efficient Tool & Die Co. — *has announced the start of construction of a second plant in Cleveland, Ohio. Efficient is expanding its facilities with the addition of this new 30,000 sq. ft. plant on Old Brecksville Road, a short distance from downtown Cleveland. Upon completion of the new plant, Richard Bredenbeck, president and general manager, believes that its capacity for large tooling, plus its strategic location, will be utilized to advantage by the automotive, appliance and related industries.*



TUTTLE & KIFT APPOINTS N. Y. SALES REPRESENTATIVE

John R. Kauffman, general sales manager, Tuttle & Kift, Inc., Chicago, has announced the appointment of William S. Owen Co., Syracuse, N. Y., as the new T & K sales representatives for the state of New York, with the exception of New York City and Long Island.

BREHM DIE PROMOTES CALLISON

The Brehm Die Division of The Steel Products Engineering Co., Springfield, Ohio, has named Walter E. Callison assistant manager of the division.

Callison will report to C. M. Brehm, division manager, and will work directly with district sales representatives. He has been with the company for 19 years.

HAVEN TO DETREX AS V. P.

T. Kenneth Haven, former executive vice president of Reichold Chemicals, Inc., has been named vice president of Detrex Corp., Detroit.

A. O. Thalacker, Detrex president, said Haven's assignments will include the study of proposed expansion programs in this country as well as foreign trade investigations and their ensuing operations.

GIBSON NAMED ASS'T V. P. OF PARKER RUST PROOF

Parker Rust Proof Co., Detroit, has named Dr. R. C. Gibson, formerly technical director, assistant vice president.

Other appointments announced by Robert W. Englehart, president, include: E. W. Richards, technical director; R. I. Peterson, service manager; and C. F. Rasmussen, assistant service manager.

PLANKENHORN TO CHI-VIT AS SENIOR PROJECT ENGR.

W. J. Plankenhorn, research associate professor of ceramic engineering, University of Illinois, has joined Chicago Vitreous Corp., Cicero, Ill., as senior project engineer, according to A. S. Ault, vice president of sales.

Plankenhorn will concentrate on

W.J.PLANKENHORN

JOSEPH JANECKE

PAUL KJELSTROM

EUGENE CRANDALL

B. J. HEDGER

JOHN TUTHILL

special technical developments and will maintain close liaison between research and development laboratories, and industrial firms and government agencies interested in the utilization of porcelain enamel on products which are not now in commercial production, and in uses new to the industry.

YOUNGSTOWN APPOINTS TUTHILL GENERAL SALES MANAGER

John M. Tuthill, assistant general sales manager, The Youngstown Sheet and Tube Co., Youngstown, Ohio, has been appointed general manager of sales.

John P. DeHetre, an assistant general manager of sales, will be transferred to Chicago to succeed Tuthill. The appointments were announced by Myron H. Watkins, recently elected vice president.

LUX CLOCK NAMES CRANDALL INDUSTRIAL SALES MANAGER

The Lux Clock Manufacturing Co., Waterbury, Conn., has promoted Eugene T. Crandall to the position of industrial sales manager, it was announced by R. H. Chirgwin, general sales manager.

Crandall has been associated with Lux Clock for 23 years, the past seven years as district sales manager in the midwestern states.

Chirgwin also announced that Frank Palfrey, formerly with Metallizing Engineering Co., has been appointed sales representative of the midwest territory.

FAHRALLOY PROMOTES SHAW

The Fahralloy Company, Harvey, Ill., has promoted Seymour A. Shaw to the position of plant superintendent, it was announced by F. M. Fahrenwald, president. Shaw has been with Fahralloy for 18 years.

VERSON APPOINTS KJELSTROM MANAGER OF SERVICE DIVISION

David C. Verson, president, Verson Allsteel Press Co., Chicago, has announced the appointment of Paul Kjelstrom as manager of the service and parts division.

Kjelstrom has been associated with Verson since 1942, most recently as chief engineer, production engineering.

Jack Steinhardt has been appointed assistant manager.

BINKS APPOINTS HEDGER NATIONAL SALES MANAGER

B. J. Hedger has been appointed national sales manager of the industrial division, Binks Mfg. Co., Chicago. He was formerly Chicago district sales manager.

Hedger joined the sales staff of the Binks Company in 1928. During World War II, he worked closely with aircraft manufacturers in California on the design and installation of spray painting departments. Since that time he has worked with several major industries in the development of streamlined finishing methods.

JANECKE TO NEW CHI-VIT POST

Chicago Vitreous Corp., Cicero, Ill., has appointed Joseph F. Janecke as market development engineer, according to A. S. Ault, vice president of sales.

Prior to his present position Janecke was field service and market development manager with Ferro Corp. and served as chairman of the Porcelain Enamel Institute new uses committee.

WOODS TO HEAD SALES PLANNING FOR ARMCO

Henry L. Woods Jr., former assistant to the president, has been appointed director of sales planning for Armco Steel Corp., Middletown, Ohio, W. W. Sebald, president, announced.

Woods will assist L. T. Johnston, vice president — sales, in planning, administering, and coordinating sales and market development programs.

POUILLY TO HEAD IONIC DIV. OF SCIENTIFIC ELECTRIC

A recent announcement by John Sedlacsik, owner of Scientific Elec-

T. KENNETH HAVEN

DR. R. C. GIBSON

H. L. WOODS JR.

WALTER CALLISON

MARCEL POUILLY

SEYMOUR SHAW

tric, Garfield, N. J., tells of the appointment of Marcel Pouilly as manager of the Ionic Spray Division.

Pouilly has long been known in the finishing industry for his work with spray equipment manufacturers, and more recently as the owner of Illinois Spray & Equipment Co.

DU-WEL NAMES SHERWOOD

W. E. Sherwood who has represented Du-Wel Metal Products, Inc., for several months in Kentucky, Tennessee, and Southern Illinois, has been assigned southern Indiana as part of his territory, it was announced by D. J. Walton, of the company home offices in Bangor, Mich.

ENAMELSTRIP ADDITION READY FOR OCCUPANCY IN JANUARY

Construction of the new half-million dollar plant of Enamelstrip Corp., Allentown, Pa., is on schedule for occupancy on January 1, 1955.

The plant is part of the firm's million dollar expansion program to meet increased demand for Enamelstrip pre-coated metal coil and the anticipated demand for Marvibond vinyl-to-metal laminate coil. Enamelstrip was recently licensed by U. S. Rubber Co. to make Marvibond and will supply it in coil form.

ARMCO'S FEILD NAMED SAUVEUR MEDALIST FOR 1954

Dr. Alexander L. Feild, associate director of research, Armco Steel Corp., Chicago, and one of the nation's outstanding authorities on stainless steel, has been named Sauveur Medalist for 1954.

The Sauveur Medal, established in 1934 by the American Society for Metals, is one of the highest honors in the field of metallurgy. It recognizes achievements which have made a marked contribution to the basic knowledge of metals.

HONEYWELL OPENS DENVER PRODUCT RESEARCH CENTER

A new research and product development center has been opened in Denver, Colo. by Micro Switch, division of Minneapolis-Honeywell Regulator Co., it was announced by W. W. Gilmore, division president.

The new center will supplement research activities conducted at the division's main office and factory in Freeport, Ill.

Wilbert Martin, assistant director of product research and development, will be in charge of the center.

PRESSED STEEL CAR CHANGES NAME

Pressed Steel Car Co., which recently purchased Clearing Machine Corp., has formally adopted a new name, United States Industries, Inc., announced John I. Snyder, Jr., president and board chairman.

BLISS, C. I. T. RENEW INSTALLMENT SELLING

E. W. Bliss Co. has announced that its five-year association with C.I.T. Corp., industrial financing firm, has been extended due to continued customer acceptance of the Bliss deferred payment plan.

ALCOA RESEARCH TEAM TO STUDY ENAMELED ALUMINUM

Aluminum Company of America's research laboratory, New Kensington, Pa., has announced the establishment of a team of men to study porcelain enamel on aluminum.

This team will deal with both fundamental research and the practical and economic problems connected with this field.

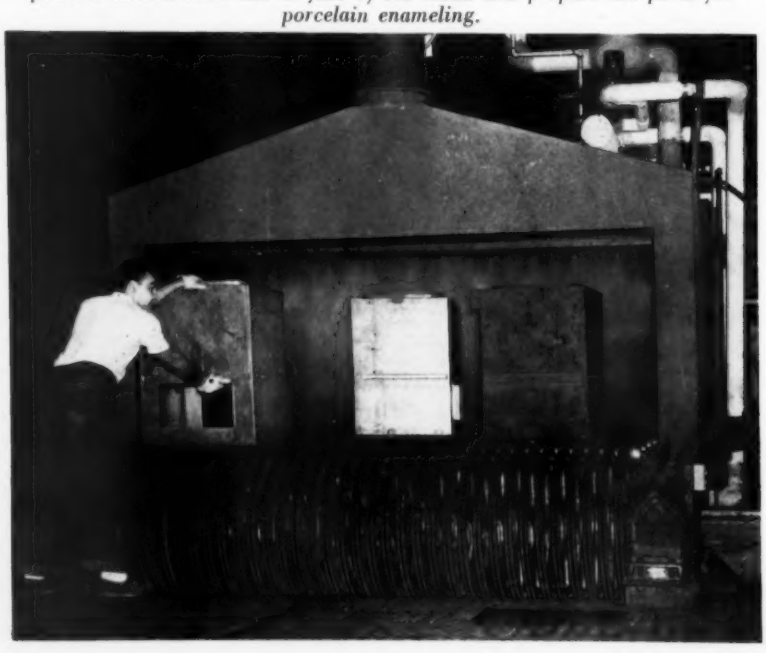
It is estimated by those in the industry that porcelain enameled aluminum will command a potential annual market of 200 million pounds by 1970.

GAYNES ENGRG. ENLARGES SCOPE OF OPERATIONS

Gaynes Engineering Co., Chicago, Ill., consulting engineers and builders of special machinery for the past 20 years, has enlarged the scope of their operations to include Latin American countries.

According to Albert S. Gaynes, president and founder, the company's engineering staff is now assisted by key personnel who have conducted operations in these various countries.

A parade of steel bodies — *tops and other parts for clothes washers and dryers — are now going through an acid shower bath in what is said to be the world's largest spray pickling machine, installed in the new Hotpoint Co. plant, in Chicago. The 175-foot-long tunned-shaped machine automatically conveys unfinished component parts through a series of compartments where pressure sprays of alkaline, acid and nickel sulphate solutions clean the surface of the metal and prepare the parts for porcelain enameling.*



December · 1954

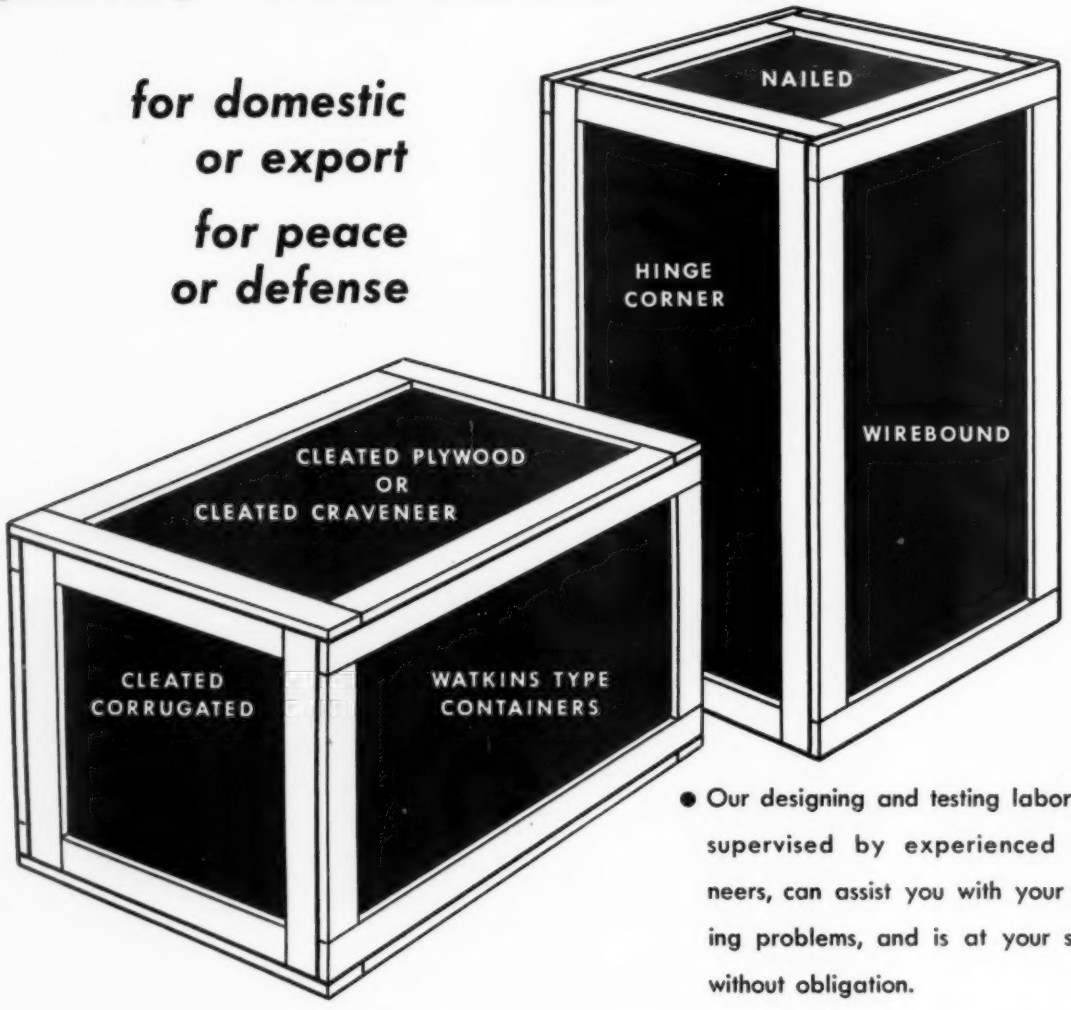
safe transit

FROM ASSEMBLY LINE TO FINAL CUSTOMER

the *Only* source for all these quality BOXES & CRATES

for domestic or export

for peace or defense



- Our designing and testing laboratory, supervised by experienced engineers, can assist you with your packing problems, and is at your service without obligation.

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safe transit

A monthly trade publication section devoted to improved packaging and shipping and materials handling practices in the home appliance and metal products manufacturing field.

Plant experience information for all executives and plant men interested in the problem of packaging and shipping improvement and loss prevention.

Complete information on the National Safe Transit pre-shipment testing program for packaged finished products, and detailed progress reports of divisions and sub-committees of the National Safe Transit Committee.

CONTENTS

MAKING "SAFE TRANSIT" WORK AT WESTINGHOUSE
Part II — by R. F. Bisbee **ST-5**

CERTIFY GRAY & DUDLEY, SILEX, WHITE, RAYTHEON, ANDREW, MIAMI PRODUCTS ST-12

NEW PACKING METHOD CUTS WATER HEATER INVENTORY
by L. P. Corsbie **ST-14**

Next Month: A report of the role of the NST-certified laboratories in the National Safe Transit Program.

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Elmhurst, Illinois
PRINTED IN U.S.A.

Vornado air conditioners — *shipped from the O. A. Sutton Corp plant, Wichita, Kansas, now carry the National Safe Transit Labe Dan Mull (left), chief engineer, states that "our cooperation with th National Safe Transit Committee has improved design to withstan shipping hazards and has helped us to develop a package that will reac the customer with the product in good condition." L. W. Schmucke (center), project engineer, also serves as packaging engineer and is i charge of package testing and development at Sutton.*

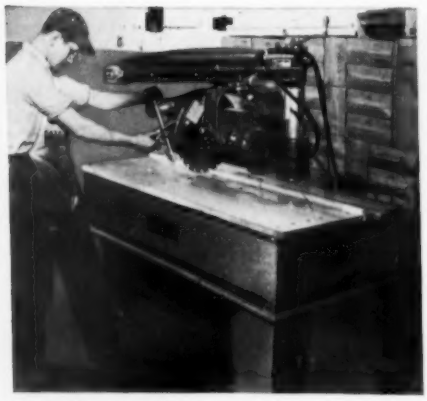
Irving J. Stoller Award — *for the entry judged to be the outstan ing award winner in the recent SIPMHE Protective Packaging an Materials Handling Competition—was won by Earl K. Gustin (left) packaging engineer of Bendix Products Division, Bendix Aviation Corp South Bend, Indiana. E. F. Gallivan, assistant secretary, Wirebound Bo Manufacturers Association, extends his congratulations to Gustin, whos package had just previously won first prize in the Export Classificatio*

"We cut our shipping costs three ways,"

says S. S. Auchincloss, President of De Walt, Inc.

"We wanted to improve the packaging of our industrial woodworking machines," continues Pres. Auchincloss. "So, we put the problem up to Atlas Plywood.

"We got that improvement — three ways — through Atlas Plywood lab-tested containers. The far greater protection these cases give our products is worth money to us in reduced damage claims. And they not only cut our assembly time by 20%, but they cost less than our old containers — making them more economical to use as well as to buy."



"Complete saw shops" is a fitting description of De Walt power saws, pace-setters wherever wood is cut. Packaging them calls for special care, to protect the mechanism from normal jolting and jarring during transit from the De Walt factory, Lancaster, Pa., to users far and near. Atlas Plywood cases supply that vital protection — and cut De Walt's shipping costs in the bargain!

Atlas Plywood Cases like this meet De Walt's needs for better, lower cost shipping. Eliminating paper shrouds, they're more secure against dirt, dust and water than the old containers. Their over-all strength, including stacking strength, is greater, too. Workers like them because they're easier to handle. And management likes them because they cut costly assembly time.

What about you? Do you risk wasted dollars due to product damage or increased shipping costs from unreliable containers? Send for free informative, illustrated 24-page booklet, "How Atlas Plywood Cuts Your Shipping Costs . . . Safely," — or see your Atlas Plywood representative (Classified Telephone Directory). Learn about the remarkable testing laboratory where Atlas Plywood containers win their *lab-tested* label. Atlas Plywood Corporation, Dept. F-4, 1432 Statler Building, Boston 16, Mass.

Atlas Plywood

CORPORATION

FROM AMERICAN FOREST TO FINISHED PRODUCT

PLYWOOD CONTAINERS • FLUSH DOORS • HARDWOOD PANELS

LAB TESTED ®

ST-4

Making "safe transit" work at Westinghouse

Part II — an outline of the importance and sequence of pre-shipment test procedures

by Ralph F. Bisbee • MANAGER OF QUALITY CONTROL, WESTINGHOUSE ELECTRIC CORPORATION, MANSFIELD, OHIO; AND TECHNICAL CONSULTANT FOR FINISH.

Exclusive feature
safe transit

The Mansfield Westinghouse plant has been doing research on pre-shipping tests of packaged products for the past 25 years resulting in the adoption of a national standard sponsored by the National Safe Transit Committee, of Washington, D. C.

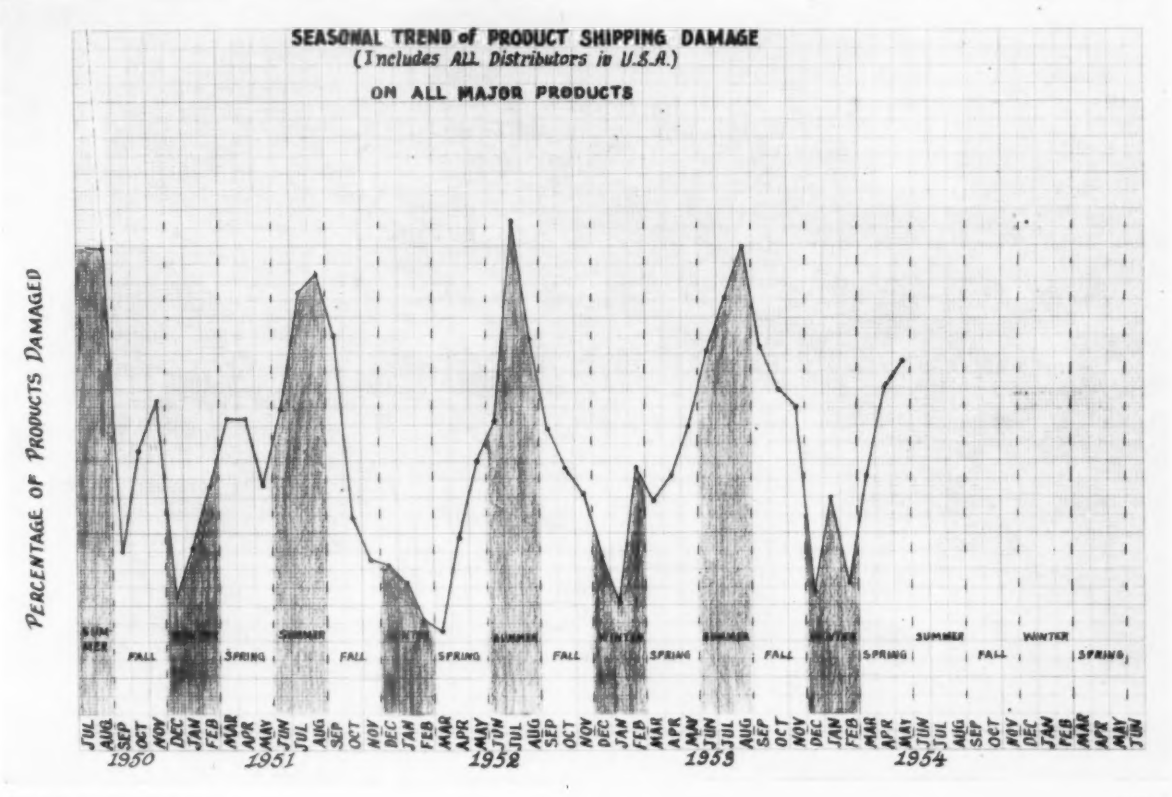
This Committee was organized in 1948, and its certified companies now produce about 80% of the volume of the major appliance manufacturers. Certified laboratories include the leading commercial and packaging laboratories of the United States. By having other major appliance manufacturers join in this movement on standardization, it should result in eventually lower tariffs for the major appliance industry.

We are not going into detail on the tests, but will simply outline their importance and sequence in this Safe Transit program as used at Westinghouse appliance plants.

Tests on all *packaged products* (NST projects 1 & 1A)

One or more packaged products from each shift are taken to the Quality Analysis Laboratory and subjected to the National Safe Transit transportation tests. To gain all benefits of the following National Safe Transit tests, we find that a minimum

Westinghouse has plotted a chart showing the percentage of total products found damaged each month. This information shows an almost unbelievable trend of damage in summer months almost double that of winter months.



Westinghouse tests a minimum of one packaged product per shift. First, the vibration test "softens" up the product to simulate those vibration conditions that occur in transit.

Next, the shock test is made to simulate the handling shocks receiv delivering. These two tests have been proved by test shipments o 100,000 miles with railroads, air cargo and truck lines.

of one packaged product per shift be tested. When a changed or new product is started, the quantity is increased.

First, the vibration test "softens up" the product to simulate the conditions that occur in freight cars, trucks over various highways and streets, etc.

Second, the shock test is made to simulate the shocks received in delivering. This has been proved by test shipments over one hundred thousand miles with all common carriers.

Note: these tests *must* be conducted in the above order.

On smaller packaged products that weigh under 100 pounds, the drop shock test is used.

In addition to this, any changed or new products are first approved by the transportation tests before they are allowed to go into production. This *eliminates all guesswork* and *no test shipments* are *required*.

Carloading tests (NST project 1B)

Westinghouse also completed research with other manufacturers on pre-testing of basic carloading, which has now become a national standard. The reason for this is simple. If enough force is given a packaged product, the container will be crushed regardless of its design. Unless there is some scientific method of determining this crushing force before shipping, there are sure to be considerable losses and our distributors will have no way of determining who is responsible. The basic carloading tests made on the same principles as on packaged products.

The test is made by placing the same shock recorder in the car and subjecting the car to various shocks into the 5th zone, which is 2½ times *more* than what the railroads have agreed is their responsibility. They have agreed anything over the 2nd zone is rough handling.

Each month basic carloading tests are made at both Columbus and Mansfield plants and this information is passed on to our distributors so that they have no problem in placing the responsibility on the carriers in case they receive a car with the contents damaged.

On small packaged products that weigh under 100 pounds, the drop shock test is used. These three tests eliminate all guesswork on whether a packaged product can reach its destination safely under normal handling conditions.

Distributor field reports

In 1950, all of our distributors of major appliances started sending us a report each month. This report included the kind of product, the number received, number found with crates damaged, and number of products damaged. Also, cars we ship *directly to dealers* are being similarly reported. *Procedure* is as follows:

(a) The form our distributors are using to report damaged crates and products is simple to fill out and is submitted to Mansfield by the 10th of each month.

(b) After the Westinghouse Safe Transit statistician receives all distributor reports, a recap is made and summarized in one report. A copy of this summary report is

returned to each distributor for his analysis.

Benefits

The value of this report is obvious. Any distributor whose *average* of damaged products is constantly *higher* than the *national* average of the United States *knows* that something is *wrong*, either with the carrier's rough handling or rough handling by other sources. This has proven very valuable and has cleared up many cases that would otherwise never have been cleared in any way.

The Safe Transit Committee always works with those distributors running highest in damage losses.

In addition to the above, by having an accurate record of every product in the United States that is received damaged, we are enabled to eliminate all guess work and confusion that result from "hearsay" reports.

Weather chart

From the distributors' reports since 1950, we have plotted a chart showing the percentage of the total products found damaged each month. This information shows an almost unbelievable trend as the summer months of June, July and August are almost double that of the winter months of December, January and February.

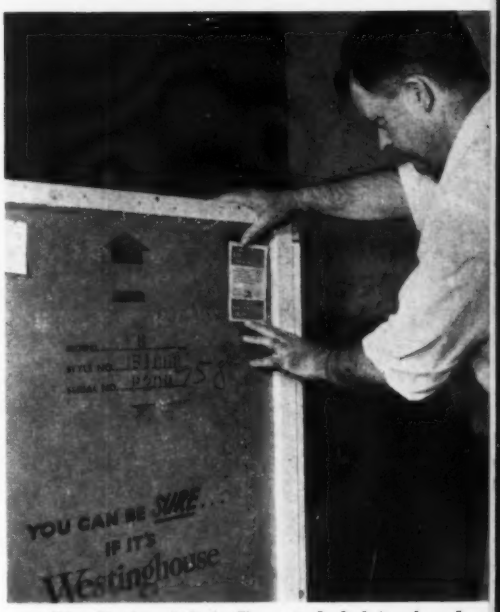
A special meeting is planned, sponsored by our Assistant Manager and Traffic Manager of Headquarters, in an attempt to determine the cause and what may be done about it. SINCE ALL PACKAGED PRODUCTS ARE HANDLED AND CARRIED ALIKE BY COMMON CARRIERS, THIS MEANS THAT THIS SAME CONDITION IS HAPPENING WITH OTHER KINDS OF PRODUCTS, and it is going to take the combined efforts of the Safe Transit Committee, Carriers and Distributors to find and conquer the reason for the trend shown on the weather chart.

Company-wide participation

Through our Director of Quality Control and Traffic Manager of the Westinghouse Electric Corporation at Headquarters, they have arranged for presentation of this basic program so that the other Westinghouse plants may obtain the same benefits as already achieved by the Mansfield Division.

The other plants that are certified or in the process of being certified include:

Springfield, Mass. — consumer products
Beaver, Pa. — switch gears
Metuchen, N. J. — radio and TV



The National Safe Transit Label is placed on all packaged Westinghouse appliances.

Sharon, Pa. — transformers
Baltimore, Md. — air arm — x-ray & electronic divisions

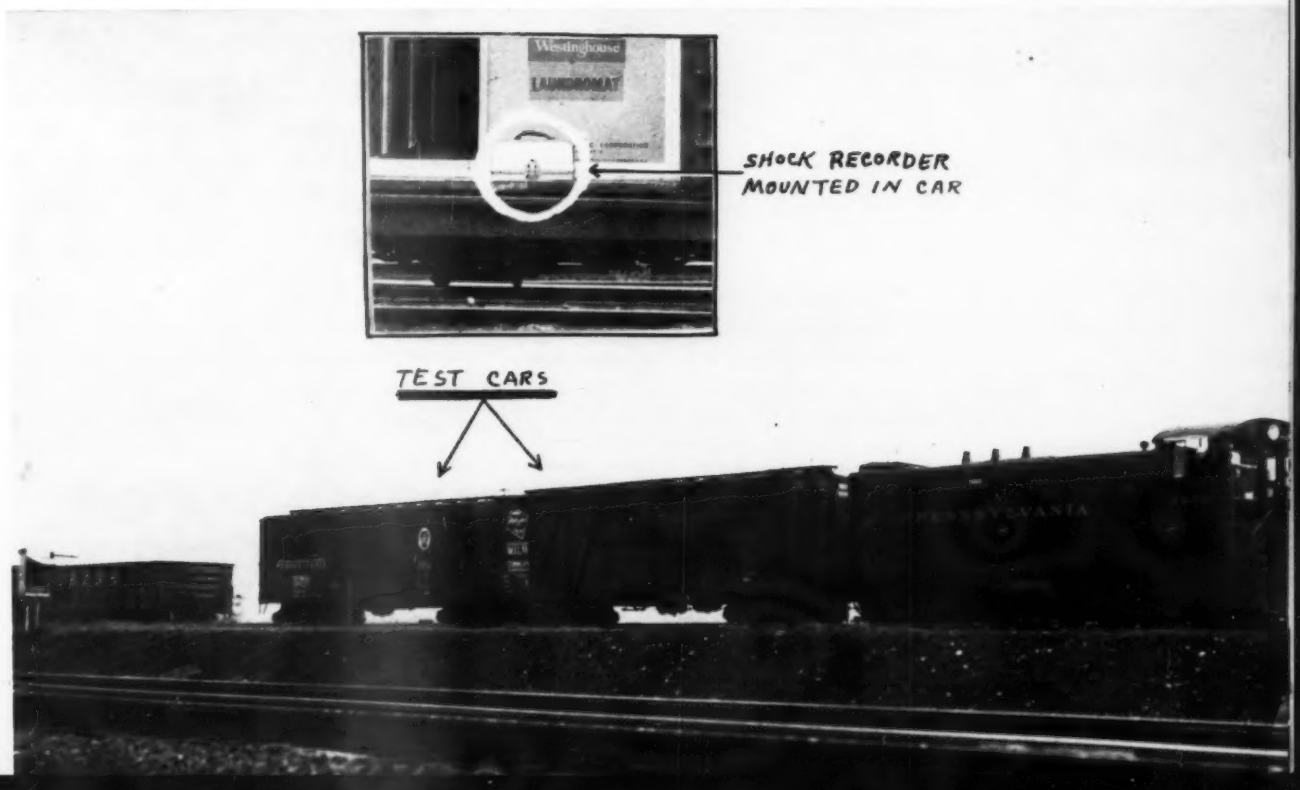
Conclusion

It is obvious that the work of this Committee has resulted in improved Distributor, Dealer and Customer relations.

It is important to emphasize that because we not only pre-test *new* and *changed* packaged products, but prodcts from *each shift* of *each day's* pro-

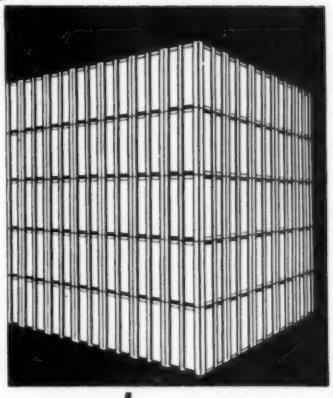
to Page ST-13 →

Each month basic carloading tests are made at the Columbus and Mansfield plants on the same principles as on packaged produc



KIECKHEFER MILWAUKEE

WATKINS CONTAINERS ARE BETTER



BECAUSE . . . . .

You receive faster service and better quality as all components are manufactured complete on modern equipment in our own plants.

Cleats are permanently attached to the corrugated board with moisture resistant glue — *under pressure of hydraulic equipment* resulting in smooth interiors with no obstructions to damage the fine finished products.

The tube corners are stapled on automatic equipment insuring close evenly spaced stitches and are additionally reinforced with a special cement.

Skid bases are manufactured for strength. The parts are accurately assembled on new modern nailing equipment. All mounting holes are drilled simultaneously on special equipment insuring absolute accuracy.

Whether your current problem is fragile neon signs, industrial equipment or finished products in volume production—check Kieckhefer-Milwaukee for a practical, economical solution.

Producers of economical product protection for "around the corner or across the nation". Service includes Pallets, Kieckhefer Paletboxes, Industrial Lumber and specially-designed special-purpose containers.

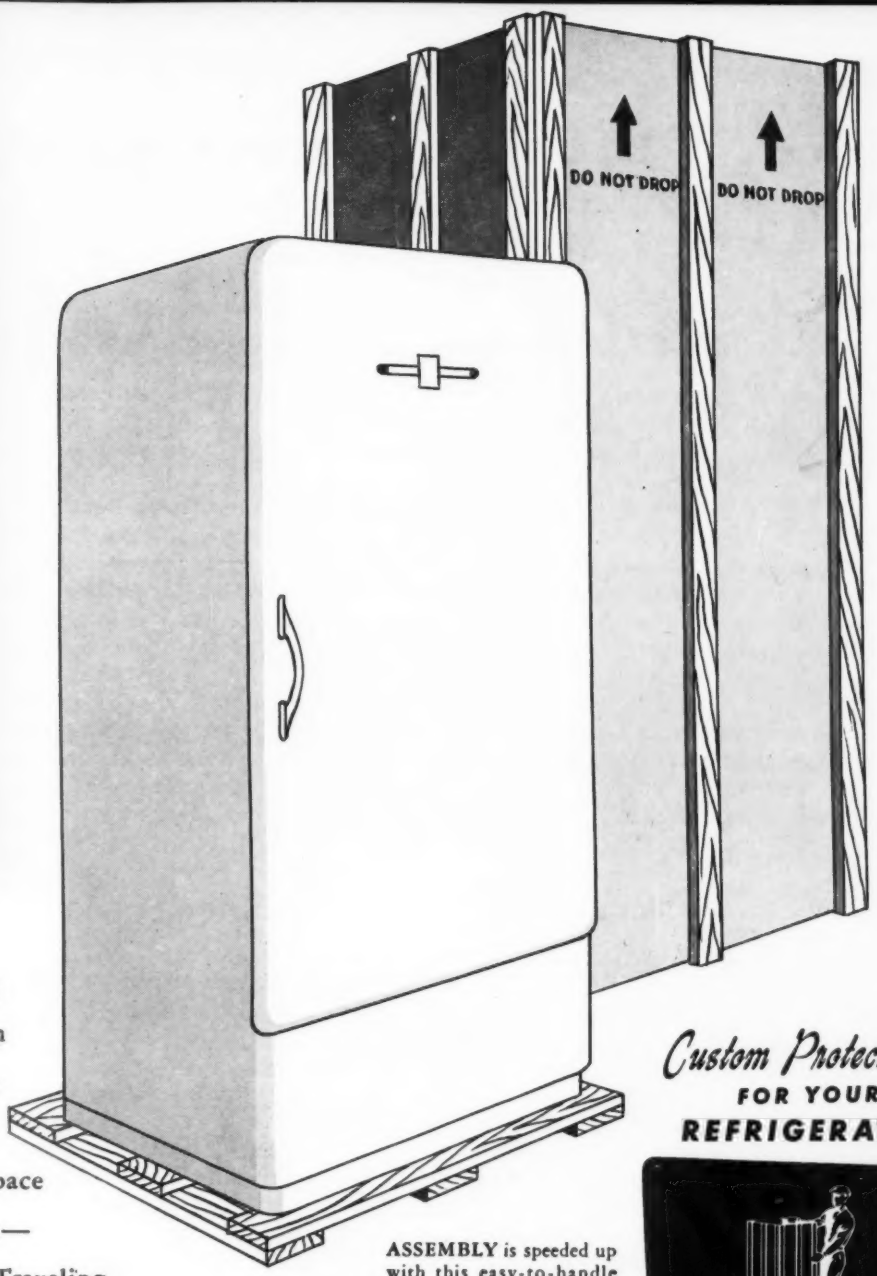
PACKAGING ENGINEERS KIECKHEFER MILWAUKEE FOR FIFTY YEARS

KIECKHEFER BOX AND LUMBER CO.

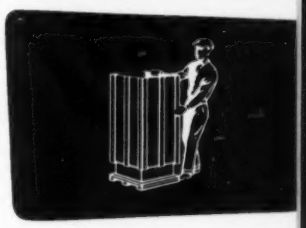
• WOODEN BOXES • BOX SHOOKS • CRATES • CLEATED FIBRE SHIPPING CONTAINERS •

1715 WEST CANAL STREET, MILWAUKEE 3, WIS.

WATKINS has the container for your shipping problem



Custom Protection
FOR YOUR REFRIGERATOR



ASSEMBLY is speeded up with this easy-to-handle container. The assembly crews are all for packing the Watkins Way.

kins Containers provide—stacking
ngth—ease of assembly—minimum
pping weight, thus reduced shipping
s—smooth staple-free interiors—
handling—minimum of storage space
ded—protection from dust and dirt—
stance to "weaving" and shock—"Traveling
board" feature for product identification and advertising.

home appliances, for *all* types of finished
ducts, the Watkins Container
our best insurance for safe
very. Ship your carefully
ufactured products safely and
nomically—ship them the
atkins Way."

these companies build WATKINS containers

Cornell Paperboard Products Co. ..... 1514 E. Thomas Ave., Milwaukee, Wis.
Cozier Container Corp. ..... 446 East 131st Street, Cleveland, Ohio
Crate-Rite Mfg. Corp., Division of Pacific Ports Ind. Inc. ..... 10901 Russett Street, Oakland, California
Dura-Crates, Inc. ..... 940 East Michigan Street, Indianapolis, Indiana
General Box Co. ..... 1825 Miner St., Des Plaines, Illinois, and 16th and Maple Sts., Louisville, Kentucky
Hemb & Martin Mfg. Co. ..... P. O. Box 108, Murfreesboro, Tennessee
Illinois Box & Crate Co. ..... 811 Center Street, Plainfield, Illinois
Kieckhefer Box & Lumber Co. ..... 1715 West Canal Street, Milwaukee
Lane Container Corp. ..... 10212 Denton Road, Dallas,
Lewisburg Container Co. ..... 243 Singer Street, Lewisburg
Livingston Wood Manufacturing, Ltd. ..... Tillsonburg, Ontario, C
Love Mfg., Inc. ..... 608 South Commerce Street, Wichita,
Pennsylvania Box & Lumber Co. ..... 2331 N. Bodine St., Philadelphia
Utility Crate Corporation ..... 1985 E. 16th Street, Los Angeles 21, Cal

—an inquiry to any of these companies will get prompt atten

The · WATKINS CONTAINER · Manufacturer

SAFE TRANSIT NEWS

NATIONAL SAFE TRANSIT COMMITTEE

DuPont Circle Building, 1346 Conn. Ave., N.W., Washington 6, D.C.

Safe Transit Committee Conducting Important Survey - Safe Transit plants, producing major appliances, have made available to the Safe Transit Committee their monthly records of shipping damage over a five-year period. These records indicate that during the vacation periods of June, July and August, shipping losses are over double what they are during the winter months of December, January and February. The Committee has charted the shipping damage experienced monthly by these plants since 1950 and is sending a copy of the chart to all Safe Transit companies in a survey to determine if the records of other companies indicate the same seasonal trend of product shipping damage. If this proves to be the general experience of manufacturers, it will then be determined what steps should be taken to reduce these high losses during the summer months. The Committee feels that among the factors that might account for a general increase in shipping damages during summer months are inexperienced personnel substituting for regular personnel on vacation, and the higher rates of travel permitted by favorable weather conditions. Non-certified companies are invited to participate in the survey which is felt to be important to all manufacturers. Copy of the chart and any additional information may be obtained by writing the Washington office of the National Safe Transit Committee.

- - - - -

NST Paper To Appear in Industrial Quality Control Journal - A paper on the subject, "Pretesting Packaged Products for Safe Transit - A Vital Phase of Quality Control", by the Committee's General Chairman, R. F. Bisbee, has been selected for inclusion in the Industrial Quality Control Journal. Publication of the article gives added recognition to the National Safe Transit Program as well as directing attention to an important phase of quality control.

- - - - -

Safe Transit As A Public Relations Tool - Recent programs by Safe Transit Companies and Laboratories serve to point up the value of Safe Transit both as a public relations and sales tool. Over 40 industrial purchasing agents meeting at the Hinde & Dauch package laboratory, toured the company's box factory and were given demonstrations of box design and testing procedures. Then came dinner and a talk on the Safe Transit Program, followed by a presentation of the Safe Transit film and another film by the Southern Railroad on the work they are doing to minimize product damage in shipment.

Another Laboratory carrying on an active educational program is the Packaging Service Company, Wyncote, Penna. To a Spring program, which demonstrated the most important phases of packaging, they invited key personnel of leading manufacturers in the Delaware Valley area. The purpose of the Program was to bring the Laboratory's services to the attention of manufacturers in that area.

An example of a Safe Transit Company featuring its participation in the National Safe Transit Program in a meeting-program is Victor Products Corporation. Approximately a hundred persons attended a meeting which they held recently at the Fountain Head Country Club, Hagerstown, Md. Present were carrier representatives from Pittsburgh, Philadelphia, New York and Baltimore as well as from the vicinity of Hagerstown. Mr. R. M. Small, Vice President in Charge of Quality Control spoke on Safe Transit. His talk was followed by a showing of the Safe Transit color-sound film. Mr. E. W. Kelliher, Traffic Manager for Victor Products Corporation, reported that the carriers in particular were enthused about the presentation of the NST Program. "We feel," he said, "that we have helped advertise National Safe Transit and we also feel that we have raised our own prestige with the carriers and other manufacturers in this area".

- - - - -

Tough to pack it?... DRUMPAK IT!

Gaylord Boxes

Because of its unusual adaptability in size and shape, a wide range of products are being profitably shipped in Drumpak. Water heaters, air conditioners, furnaces, forgings, carpets and bulk chemicals are just a few.

The Gaylord-originated Drumpak design cuts packing costs, speeds product handling, gives greater protection and is easier for the customer to open.

You'd be interested in some of our Drumpak cost-saving case histories. Call your nearby Gaylord sales office.

CORRUGATED AND SOLID FIBRE BOXES • FOLDING CARTONS • KRAFT PAPER AND SPECIALTIES • KRAFT BAGS AND SACKS

GAYLORD CONTAINER CORPORATION ★ ST. LOUIS

SALES OFFICES FROM COAST TO COAST ★ CONSULT YOUR LOCAL PHONE BOOK

CERTIFY WESTON LABORATORY

The 38th laboratory to be certified by the National Safe Transit Committee is The Weston Paper & Manufacturing Co., Terre Haute, Indiana.

SAFE TRANSIT COMPANY CERTIFICATIONS TOTAL 178

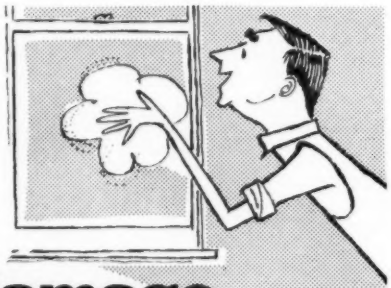
new certifications include Gray & Dudley, Silex, White Products, Raytheon, Andrew, Miami Products

Latest certifications of firms participating in the National Safe Transit Program include:

Gray & Dudley Co., Nashville, Tenn.; Chicago Electric Div., The Silex Co., Chicago, Ill.; White Products Corp., Middleville, Mich.; Raytheon Mfg. Co., Brighton, Mass.; Andrew Corp., Chicago, Ill.; and Miami Products, Inc., Miami, Okla.

A total of 178 manufacturers are now certified by the National Safe Transit Committee.

what polishing a window can teach you about

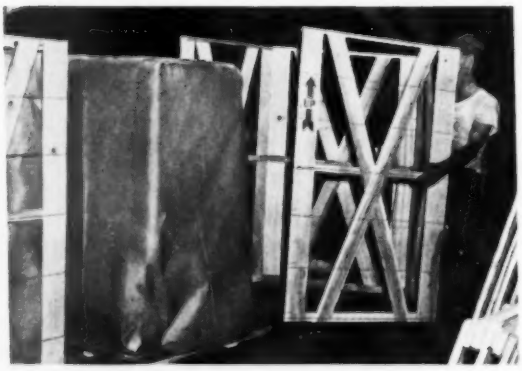


abrasion damage

Ever notice the harder you rub a window, the more dust and lint is attracted to it? Now manufacturers have found the same principle causes abrasion damage in shipping metal and enamel-finished products.

Slight friction due to car movement creates static electricity, attracting dirt, dust and soot to unprotected surfaces. These abrasive particles can ruin a fine finish. Result: lost sales, damage claims.

PREVENT ABRASION DAMAGE WITH CROMWELL *finish-protection* COVERS



- ***tailormade*** for your product to seal out dirt, dust and fumes
- ***wax-lubricated*** to eliminate friction
- ***extra-tough*** to protect against scratch and scuff
- ***waterproof*** . . . stainproof

Specified by leaders in safe transit packaging for appliances, furniture . . . any lacquer, porcelain, wood or plastic finish. Also available in double-thick paper with special non-stain laminant. Ask your Cromwell paper jobber. Or write now for full details.

Paper Engineers for Industry

Cromwell PAPER COMPANY

4821 South Whipple Street • Chicago 32, Illinois

ST-12

CANADIAN GROUP HOLDS PACKAGING CONFERENCE

More than 300 businessmen attended the 7th Quebec Regional Conference of the Packaging Association of Canada, in Montreal, October 18. At the same time the Eastern Division of the Technical Institute of the Packaging Association made its debut with a full afternoon of five concurrent technical packaging problem clinics.

L. S. Vaines, system supervisor, loss and damage prevention, Canadian Pacific Railway, pointed out that over a half a billion dollars worth of manufactured packaged products shipped in the United States annually fail to reach the consumer in good condition.

"Class I railways in the United States and Canada paid a little over $100 million on claims in 1953. Steamships, insurance underwriters and other modes of transportation paid out many times this amount on domestic and export cargo claims. Just think of the money lost . . . It was literally torn up and thrown down the drain . . . Why? Because somewhere somebody failed in his job, failed to think, or was apathetic," stated Vaines.

He urged that all means be taken to properly package products to withstand handling and shipping damage. "Proper packaging is an art and should no longer be considered a lowly occupation," emphasized Vaines, who stressed that proper packaging is just as important as the manufacture of a product.

GAYLORD CONTAINER TO BUILD PLANTS IN FLORIDA AND TEXAS

Gaylord Container Corp. has broken ground for a box manufacturing plant in Miami, Florida, it was announced by J. P. Tarantino, Jr., Florida divisional vice president.

Lloyd Merwin, Texas divisional vice president, announced that Gaylord will begin construction of a box converting plant in San Antonio.

Safe Transit — at Westinghouse

→ *from Page ST-7*

duction, we have achieved the following benefits:

1. — *Better Quality Control* — The true quality of a product *may appear* to meet standards after its completion. Many of our leading quality control organizations in many industries stop quality control at the end of the assembly lines. At this point, the *true quality control cannot be definite* until after it is subjected to Safe Transit pre-shipment tests which simulate actual handling and transportation.
2. — *Reduction in Packaging Cost* — By having a *definite standard* for pre-shipping tests, it becomes a positive tool in reducing the costs to the "last drop" and still be safe for shipment.
3. — *Reduction in Product Losses in Transit* — To *assure the product will stand normal handling and transportation before it is shipped.* By doing so, it guarantees the product will reach its final desination in good condition.
4. — *A Tool for Design Engineering* — The basic design can be determined by the engineer's testing a model rather than waiting until all tools are built and then finding basic design weaknesses.
5. — *A Vital Sales Aid* — It is obvious by the benefits gained listed above that this program is a definite sales advantage in showing the customer that the shipper is doing everything possible to save him trouble and expense by reducing damaged goods.

All of these benefits affect our distributors, dealers and customers by assuring them that everything known to shipping science has been done to ensure consistent high quality, safe delivery of the packaged product at minimum cost. This is another reason for our slogan, "You can be sure — if it's Westinghouse."

1 generalift pallet crate

replaced **6** heavy nailed crates

cut packaging costs 50%

reduced shipping costs 25%

McCord Corporation, Plymouth, Indiana, solved both a packaging and a materials handling problem with the Generalift Pallet Crate shown above. Conferences with General Packaging and Sales Engineers produced a crate which held 24 radiators, packed easily, and could be handled by fork-lift from the shipping room all the way to assembly lines. It formerly took 24 heavy nailed crates and from 24 to 30 hours of labor to ready 96 radiators for shipment. Packing the same number in Generalift Pallet Crates takes only 4 hours.

This is only one example of the many packaging problems solved every day—at a saving—in General Box Company's two fine Industrial Packaging Laboratories. General Box packaging experts stand ready to help *you* cut packaging costs, too. Write for complete details.

Find out how other manufacturers are cutting packaging costs. Write for your free copy of "The General Box."

General Box COMPANY

1823 Miner Street
DES PLAINES, ILL.

Factories: Cincinnati; Denville, N. J.; Detroit, East St. Louis, Kansas City, Louisville, Milwaukee; Prescott, Ark.; Sheboygan; Winchendon, Mass.; General Box Company of Mississippi, Meridian, Miss.; Continental Box Company, Inc., Houston, Texas.

ENGINEERED SHIPPING CONTAINERS FOR EVERY SHIPPING NEED

• Generalift Pallet Boxes • Corrugated Fiber Boxes • All-Bound Boxes
• Cleated Corrugated and Watkins-Type Boxes • Wirebound Crates and Boxes

This is the line on which Coleman water heaters of 20, 30, 40 and 45-gallon capacity are semi-assembled. They reach the end of the line completely assembled — except for the burners which are installed later in accordance with specific orders.

New packing method cuts inventory of water heaters

finished goods inventory at Coleman's LaPorte, Indiana, plant reduced 41 per cent

by L. P. Corsbie • GENERAL MANAGER, THE COLEMAN COMPANY, INC., LAPORTE, INDIANA.

WE are saving a substantial sum every year simply as a result of a change in our method of packing our Vit-Rock water heaters for shipment. The saving results from the elimination of hidden damage, the reduction of all shipping damage to practically nothing, and a reduction of 41 percent in the inventory of finished goods we must keep on hand at LaPorte to await shipment.

Coleman Vit-Rock water heaters are manufactured at LaPorte in 20-, 30-, 40- and 45-gallon capacities and can be equipped with various types of burners for natural, artificial or liquified petroleum gas, oil, and other fuels.

Formerly, we had to maintain sufficient inventory of all sizes of heaters with all types of burners to fill orders promptly. This meant considerable investment in inventory in storage.

Furthermore, the type of container we used to pack our heaters in was found to be unsatisfactory by our dealers because hidden damage was frequent and often not detected until too late to determine which carrier a claim should be filed against. Defacing of the finish, denting of the jackets, even puncturing of the jackets, occurred during shipment and handling.

The conversion to a new crating procedure resulted in immediate elimination of hidden damage and a reduction of all types of shipping damage to practically nothing.

We now operate two assembly lines, on one of which heaters are completely assembled, except for their burners, and are crated. On the other line, burners are installed as per specific orders and final inspections

The base of the crate is placed in position even before the water heater starts through the assembly line. Pre-attached metal cups on the base snugly engage the supporting legs of the water heater and prevent it from shifting during assembly, shipping and handling.

After a water heater is completely assembled—except for its burner—it is packed in a wirebound crate to await final assembly, testing and shipment. The crate is closed temporarily and is taken to storage to await final orders for the burner.

and tests made without having to uncrate the units.

This unique process was brought about by our adopting crates engineered so that a heater can be crated at the end of the first semi-assembly line in such a way that any type of burner can be installed later through one side of the crate. That side is closed only temporarily by a couple of wire-loop fasteners.

Semi-assembled units go to temporary storage prior to burner installation

By being able to move semi-assembled heaters to temporary storage and install burners as orders are received, instead of ahead of that time, we save the cost of keeping a complete inventory of finished heaters of all sizes with all types of burners awaiting shipment.

A very pronounced "extra dividend" from our conversion has been the highly favorable reaction of our dealers as a result of the elimination of damage.

On final assembly line, crates are opened for installation of specific burners, as ordered, without having to remove heaters from crates. The completed units then are tested and the crates securely closed for shipment.

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Customer Service YORK ST. AT PARK AVE., ELMHURST, ILLINOIS

"I saw your ad in finish"

WANTED

CERAMIC ENGINEERS—to work on the Development of Porcelain Enamel Frits. Send complete resume and salary requirements. Replies are strictly confidential. Our Personnel are aware of this ad.

Address reply to Box 1254, c/o *finish*, York St. at Park Ave., Elmhurst, Ill.

WANTED: SALES MANAGER

Somewhere in the area between the Alleghenies and the Mississippi, there is a man who will recognize this ad as a golden opportunity. He may now be a Sales Manager, Assistant Sales Manager, Technical Correspondent, or successful Salesman of Industrial Organic Coatings. He is under 50, a hard and tireless worker, with technical background and definite sales outlook on life. He has had intimate contact with wide variety of finishing problems and knows that Industrial Sales are built on personal contacts. He has been successful in his job, but is looking for broader horizons. He has contacts that he can convert into substantial business, either personally or through other salesmen who believe in him.

If you fit the above description, write in complete confidence about your background, personality, experience and ability to the President of a well established, strictly industrial company, located in Ohio River Valley, who desires to establish a separate Metal Finishes Sales Department and is looking for the right man to initiate and carry out ideas that will result in volume sales. Complete and adequate laboratory and manufacturing facilities available. Broad and liberal insurance, hospitalization, medical care and retirement plans now in effect. Income practically unlimited, based solely on results.

Address reply to Box 1254-A, c/o *finish*, York at Park Ave., Elmhurst, Ill.

POSITION WANTED ENAMEL SUPERVISION

A veteran of 20 years experience in supervision of enamel plant operations can be available upon short notice — due to curtailment in operations of present employer. Has experience in enameling parts for kitchen and laundry appliances, TV cones, lighting reflectors, as well as some low temperature work.

Address reply to Box 1254-B, c/o *finish*, York St. at Park Ave., Elmhurst, Ill.

WANTED: REPRESENTATIVES

Reliance Varnish Company of Louisville, Kentucky, is seeking the services of industrial salesmen to represent them in central and northern Ohio and Indiana.

We are pioneers in Wrinkle, Flow-Coating, Dipping and Appliance finishes. The men who join us will be backed by excellent laboratory, production and technical service facilities.

The right man will more or less write his own "ticket" as to complete draw, but only experienced men will be considered.

A personal and confidential interview held at our expense is most desirable. Please address replies to: Ben Robertson, Jr., Reliance Varnish Company, Louisville 9, Kentucky, telephone Franklin 3585.

5762